

REPORT

ON

DEVELOPMENT OF MOUNT ALU

BY

A. E. MIRAMS, Esq., F.S.I. F.R.S.I.
Consulting Surveyor to the Government: " : Bombay



DELHI
GOVERNMENT CENTRAL PRESS
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INDEX.

	PAGE.
Photographs 1 to 4 of the Nakh Lake and Bazaar Area	
Introduction	1
TRAFFIC COMMUNICATIONS—	
Pilgrim Road	5
Four Mile Chukkar Road	7
Branch Roads	8
BUILDING SITES—	
General note on valuation and finance	10
Building sites in detail	12
Bikaner Group	13
Four Mile Chukkar Group	14
Golf Links Group	15
Kala Chappar-Terma Group	16
Tahsil Group	18
Abu Road Group	20
Gasmukh Road Group	21
Abu High School Group	22
IMPROVEMENT OF BAZAAR AREA—	
General Development	26
Existing Buildings	28
Road construction in Bazaar proper	29
Regrading and surfacing	29
Branch Roads	30
New Roads	30
Sanitation	30
Water supply	32
Drainage	32
Acquisition of properties	33
Land available for development and disposal	34
Land tenures in Bazaar	34
Rehousing of Municipal sweepers	35
Marketplace	36
Gardens and tree planting	36
Vegetable market	36
Meat market	36
ABU WATER SUPPLY—	
Note on the finance of Kudra Nullah Scheme	37
SUMMARY	
	41

INDEX—*contd*

	PAGE.
APPENDICES—	
No. 1—Valuation of building sites	43
No. 2—List of building sites with details (suitable for public circulation)	45
No. 3—Financial statement of the Development of Building sites	67
No. 4—Valuation of properties to be acquired in the Bazaar area	68
No. 5—Areas of final plots in the Bazaar area	72
No. 6—Financial statement of the Bazaar Improvement Scheme	73
No. 7—Estimates of works in the Bazaar Improvement Scheme	74

INDEX TO PLANS.**BUILDING SITES**

	PAGE
Plan showing the proposed development (Scale 220' = 1")	863
Plan showing the proposed development reduced to 6" to a mile (suitable for public circulation)	865

IMPROVEMENT OF BAZAAR AREA

Plan showing original and final arrangement (33' to 1")	824
Plan showing final arrangement (33' to 1")	847
Type designs for latrines	848
Type sections for roads and drains	849
Plan showing tenures in Bazaar Area	850

⑤ REPORT ON DEVELOPMENT OF MOUNT ABU

By A. E. MIRAMS, Esq., F.S.I. F.R.S.I.,
Consulting Surveyor to the Government of Bombay

This report is for various reasons not as comprehensive as I should have liked but a great deal of research work has been devoted to the report. However it is not as full as I should have liked, owing to a variety of circumstances over which I have had no control.

2 The funds at the disposal of the Rajputana Agency were very restricted but this particular fact has not materially affected the treatment of the subject as regards the particular matters with which the report itself is concerned. The absence of funds has prevented me from presenting the report with printed matter and plans as I should like to have done. A report in manuscript, when dealing with a variety of subjects as comprehended by a Development Scheme, is always unsatisfactory.

3 Generally my remarks have been divided into five heads --

- (1) Traffic Communications
- (2) Building sites
- (3) Improvement of bazaar area
- (4) Brief notes on water-supply
- (5) Summary

4 Mount Abu is a hill station situated 4,000 feet above the sea level. It is frequented by officials and residents of the Rajputana States, and to a certain extent by others who find their normal occupation in Ahmedabad and other parts of Guzerat and to a still less extent on comparatively rare occasion by people living as far away as Bombay. It is the Headquarters of the Rajputana Agency and a holiday resort of many of the Rajputana Princes.

5 In conformation it may be said to partake somewhat of the nature of a semi plateau broken up by a series of precipitous hills, with the result that there is a comparatively small proportion of land naturally available as building sites. Roughly, the hill may be said to have an all over area in so far as that part, which is said to be habitable is concerned, of 2,000 acres.

6 A detailed description of the hill is contained in the Gazetteer and it is neither necessary nor desirable to recapitulate or to attempt to enlarge upon such description in a report of this nature. Suffice it to say that except during the rainy season which extends from the

middle of June to the middle of October, the hill is admirably suited for residential purposes throughout the year. It goes without saying that from a commercial point of view apart from the benefits conferred by its excellent climate, it is negligible but it is a magnificent hill station with peculiar and unrivalled scenery. Furthermore, it is not difficult of access as it can be reached by motor from Abu Road station, which is only 17 miles distant. The hill is provided with an excellent club known as the Rajputana Club, quite a good cricket ground and a first class polo ground, and there is room for improved hotel accommodation. The configuration of the hill does not lend itself to the provision of such roads as would be suitable for vehicular traffic, and the powers that be would be wise not to attempt to provide for such traffic apart from the facilities given to motors running to and from various parts of the hill on the arrival and departure of visitors.

7 When treating of traffic improvements in this report, I have supported the proposals to construct two new main roads, which I refer to in the report as the 'Pilgrim Road' and the 'Four mile Chukkar Road' for want of a better known description. Both these roads will of course be suitable for the usual vehicular traffic as well as for motor traffic travelling not more than an average of 15 to 18 miles per hour and it will be a matter for administration as to whether these roads together with the main Abu Road should be allowed to be so used. Only those roads within the realms of practical politics have been suggested, and generally speaking the cost of such roads will be reflected in the increased value of the lands sold. This remark applies with particular emphasis to branch roads giving access to new building sites. In the case of the Pilgrim Road and the Four mile Chukkar Road, which are really arterials, not much could be expected from sales of the adjoining properties and it is only fair and proper that the public in general should contribute towards the cost of their construction.

8 The problem I set myself was to find with a certain amount of accuracy lands which might be made available for the erection of bungalows and the provision of access thereto. These points are dealt with at length in the body of the report under their respective heads.

9 Another matter of considerable importance to Abu is the improvement of the existing bazaar and the development of lands coterminous therewith. There can be no two opinions as to the importance of this subject, and the photographs accompanying this report will give some idea of lands near the bazaar which can, as I shall show be readily developed with a two fold object of improving the sites from a sanitary point of view, and the provision of additional building sites for the existing residents in the bazaar area as well as for shopping purposes.

10 Finally, it is not a serious matter and the statement I attach to this report will show that the whole of the improvements can be carried out with a net cost of less than Rs 10,000. I have made a particular reference to the provision of new latrines as I am most emphatically against the continuation of the existing type of kutcha structure which is hideous, inconvenient and approaches the insanitary.

11 A note on the finances of the water-supply scheme already under consideration, which appears in the report is self explanatory, and it may be sufficient here to state that under the scheme it is estimated by me that water could be supplied on the basis of cost at Rs 1-8-0 per 1,000 gallons. The Public Works Department arrived at a figure of Re 0 11 0 whereas the average cost by bidders has been stated by the P. W. D. to be Re 5 per 1,000 gallons for a regular supply for the whole year. These figures speak for themselves and are a refutation of the claim made by certain people thatasmuch as the majority of bungalows already have their own wells, it is not necessary to provide for a municipal water supply, but the conveniences attached to a regular pipe supply as against the supply from wells is so obvious that apart from the saving involved it is unnecessary to argue the question.

12 There is one other small point which might be referred to with advantage viz., the proposal to remove the incinerator and the contractor's yard from their existing position flanking the main Abu Road. It is a depressing and objectionable feature, which at once strikes the visitor, on his approach to Mount Abu, to be confronted with the incinerator used for night soil and rubbish and the unsightly contractor's yard. I propose that the incinerator should be to the north of site No 40 in the valley of Nadu. Easy access to the road could be made to the west of site No 40 breaking off from Abu Road at mile No 1/3, which is about the same place the Pilgrim Road takes off. This would entail a road for as much as 1,200 feet in length, and the incinerator will then be at a distance of 1 6 miles from the station as against a mile at present. It will then be constructed at a height of 3,730 feet and some 130 feet below the level of site No 40 and I do not think, it can be suggested that even this latter site would be seriously affected. The low lands adjoining the above site might with advantage be used for purposes of night soil trenches and the resulting manure disposed of to cultivators.

13 Passing along on his way to Abu the visitor skirts the area which is in the immediate vicinity, which I call as the "bazaar area".

14 Accompanying the report, are the full plans showing the improvements proposed. The building site proposals result in a total area of 375 acres being made available. It might here be remarked that the Executive Engineer had estimated 578 acres for building sites and it is not clear how this figure is arrived at. From the foregoing remarks it is apparent that I am not in agreement with him. I have selected a further three sites with a total area of 20 acres. The report deals with the question of development of these sites in detail and the estimates thereof.

15 It should be understood that the value appearing in the valuation statement of building sites is intended to represent the value of the land apart from a ground rent of Rs 20 per acre per annum which I gather it is desired to levy on all building sites, in other words the

value stated if it is desired to arrive at the fee simple value, should be increased in every case by approximately from Rs 300 to Rs 450 per acre

16 The conditions of leases should include in addition to the payments of premium and ground rent provisions against cloning or diverting nullas without the permission of the Municipality. The mining and mineral rights should be reserved to Government except in so far as the lessee might have the right to quarry stone or material for actual use on the site for the purpose of erecting a bungalow or developing the land

17 There is just one other point in connection with building sites which might with advantage be mentioned here viz the question as to whether the sites on the Nakhu lake should or should not be developed. The Municipality has I understand resolved to withhold the disposal of these sites for the time being on the ground that water in the lake might be contaminated as the result of their use. There are only five or six sites at the most and they are very difficult of development and not likely to find ready purchasers. Apart from the contamination of the lake there is just the other point and it is not an unimportant one viz that of the aesthetic and if buildings are allowed to be erected the elevations should be submitted to a keen criticism before construction takes place. It is possible to have an attractive and handsome building put up which could add to the appearance of the neighbourhood as a whole and enhance the general view of the lake on the other hand an unsightly building might easily be an eye sore.

TRAFFIC COMMUNICATIONS

The detailed description of the several building sites indicates that some of the sites are actually on existing roads e.g. those on the Abu Toad the High School Road the Anadra Road and the Sunset Point Road and consequently very little if any expense is called for in providing communication to them. Of the total of 62 sites 21 are more or less adjacent to existing roads. The remaining 61 must be provided with suitable approach roads and I discuss these after giving a description of the proposed arterial or traffic roads which may be designated.

The Pilgrim Road and the Four Mile Chakkar Road respectively for want of a better nomenclature.

I do not consider it desirable to make more than a couple of important recommendations in respect of the construction of the two main traffic roads viz (1) the Pilgrim Road and (2) the Four Mile Chakkar Road. Sundry alignments have been suggested from time to time and prepared by the Executive Engineer at Abu

The general construction of the Pilgrim Road is more or less physically fixed but a close examination of the proposed alignment has led me to make certain recommendations which in my opinion will result in an improvement. I refer to this road hereafter.

Apart from these two main thoroughfares, there would be need to construct subsidiary roads (throughout the Report I will refer to them as "branch roads") These branch roads number in all nine. They are essential for the development of building sites in the immediate proximity. The total length of these branch roads is 8110', and the estimated cost of construction is Rs 27,700. Generally, I have provided in my estimates for these branch roads to be 20 feet in width and carpeted with 6 inches of metalizing 12 feet in width. Their alignments have been naturally selected on the easiest possible gradients. They may all be said to be suitable for vehicular traffic. In addition to the above nine branch roads it will be necessary, if access is to be given to plots 26, 27, 28 and 29, to construct three other branch roads, but I do not recommend their construction for the reason that they will have to cross a very wide nulla locally known as "Nadi" (the name itself indicates the width of the nulla), and the culverting or bridging of such a nulla would be so expensive as to, in my opinion, render the construction of the roads uneconomical. It might appear superfluous in view of these remarks to make any reference to the proposals, but the fact is that the four building sites are within a reasonable distance of the proposed Pilgrim Road, and will be available hereafter when all other lands are disposed of. In addition to the new construction, I make sundry suggestions for improving two existing roads. I have numbered these branch roads from 1 to 9 and they are shown on the plan in red each road having its own identification No. in a green circle on the alignment.

THE PILGRIM ROAD

This road when made will ultimately be a very important thoroughfare, and its construction calls for no justification. Its user will primarily be for traffic quite unconnected with the building sites it incidentally gives access to. The advantages to be conferred by its construction are so well recognised, that there is no need to dwell on them in this report. As the title indicates the road will provide for vehicular access for pilgrims to the celebrated Dilwara temples. It will further greatly shorten and improve the approach to the Alwar I state.

A regular project has been worked out in detail and an estimate amounting to very nearly a lakh of rupees, for improving the existing track and aligning the road has recently been submitted to the Government of India. The existing Pilgrim Road starts from a point on the Abu Road adjacent to the Abu High School Road and ends near the Dilwara temples. Bridged at three places in order to cross big nullas, it is nevertheless just a rough track not more than 5 feet wide on an average, and usually no more than a rough footpath and only passable for pedestrian traffic.

I have carefully inspected the proposals, with which I generally agree. It is however possible to reduce the cost of construction by effecting certain changes as stated below.

Prima facie an appreciable saving could be effected by reducing the width of land to be acquired for the road. It is true a greater portion of the road will pass through Government land but almost 4 000 feet length passes through private land mostly culturable and 10' width between road boundaries instead of the 80' contemplated in the Scheme would result in reducing the acquisition from 10 acres to about 7 acres which at the average rate allowed for, of Rs 600 per acre would amount to Rs 4 200 instead of Rs 6 000 thus effecting a saving of Rs 1 800. It need not be pointed out that the actual formation of the road should not be more than 20'—the Abu Road is not more than 21' on an average—and a 15' extra on either side will unless the road is in a heavy bank where the width could be locally increased be found quite sufficient for future widening etc. Anything approaching 80' or 100' (as proposed in an earlier report on the subject) is absolutely unnecessary and would be wasteful in the extreme.

Apart from the consideration of the several approach roads to the sites on the right and left of the new road which will be discussed later on I generally agree with the realignment which commences at mile No 1/2 of the main Abu Road 930' due north of the take off of the existing Pilgrim track. This is the most suitable point of contact for this purpose. The course of the alignment upto chainage 2 500' i.e. upto a point 450' south of the bridge towards the east of the Nilmuktba Mahadov Temple near site No 25 is unobjectionable. In view of the fact however that the existing bridges which are only meant for pedestrian traffic are to be replaced by new ones capable of taking a 5 ton running load it is not obligatory to restrict the alignment so as to pass over the existing bridge and a 30' move towards the west as regards the actual crossing of the nullah and a change in the further course of the alignment as far as the Torna village chainage 3 600 as shown in plan No 853 would result in less acquisition less height of bank and consequently a reduced ultimate cost.

With regard to the curved portion actually falling in the Torna village and the further course of alignment between chainage 3 600 and 4 200 or in other words between the Torna and the Gora Chhipra villages I suggest a radical change from the existing proposals from a practical point of view. The existing portion of the road between these two villages sweeps round the south west side of Mr Sharifudin's house and I see no necessity for the costly diversion which has been proposed through private agricultural lands towards the east of 'tunc's' house involving costly acquisitions and claims for severance and a heavy bank for over 800' length. It would result in a clear straight reach of road much favoured by motorists but it is not justified from an economic point of view. The existing road gradients are quite good between the two villages referred to and all that is necessary is to widen the road where necessary, which will not be a costly affair in view of the good ground for the greater part of this section. The curve passing through the Torna village could with advantage be moved 25' westward of the proposed alignment so as to properly link up the

two portions at its extremities and to keep within practicable grades. Proceeding further ahead of the Gora Chuppra village, the existing Pilgrim Road overlaps the road going north west to the Military barracks, for about 200' length and then suddenly sweeps down towards the north east in a nulli between two high hills and then taking a sharp turn towards north west below pillar No 10 of the Cantonment limits, rises up through broken land for about 400' and finally crosses the ridge through a saddle in the hills and emerges on the plains towards the north between the Alwar site and site Nos 2 3 and 4 situate towards the east of Bikaner House. The proposed alignment for this portion allows of a little more flattening up of the 'S' curve towards the north east of the Gora Chuppra village, if a little greater expenditure is possible. If economy is urgent, I do not press the point as being essential. The further course of the alignment along the side of the nulli towards the left, would necessitate the construction of a retaining wall on the down stream side almost upto the ridge (chamage 6,700) and seems to be the most practicable line to be followed. I agree with the alignment between this saddle and the ridge further north east i.e., between chunagi 6,700 and 7,900, although it passes through low land and would consequently require a heavy bank, as the road would then be better situated with regard to the sites on its flanks. I refer to the Alwar site on the east and site Nos 2, 3 and 4 on the west and Bikaner House which would also derive no inconsiderable benefit from this road. The final section from chunagi 7,900 to 9,516' (where it joins the Abu Orra Road), falls entirely outside the 1 mile area and is consequently within the Sirohi limits. I recommend that the curve near pillar No 4 should be slightly moved towards the south west, as well as the further alignment, as shown in plan No 1, which would result in improving the curve and also reducing the bank by an appreciable amount. The total length of the road will be 1.85 miles and the cost of its construction is estimated to be rather under a lakh of rupees. This total cost will be recoverable in part from plots developed by the road as building sites. Such part measured by the aucturing increment is approximately Rs 36,000 (including the capitalized ground rent).

It is understood Rs 20,000 is to be, or has been contributed by His Highness the Maharaja of Alwar and that Rs. 40,000 will be received from the Jain Community.

In this way practically the whole lakh will be recovered.

THE FOUR MILE CHUKKAR ROAD.

I think it is desirable that what might be termed the eastern side of this Chukkar Road should be made into a prominent roadway preserving generally its present alignment which exists as a road or path from the Dak Bungalow going in the north easterly direction through Kumharwara and meeting the Pilgrim Road at chunagi 5,000. At this

point its length is about 2,900' and further on it preserves the same alignment as the Pilgrim Road for a distance of about 700'. It then branches to the right or north east and continues on to near the southern boundary of the Alwar Estate, it continues more or less parallel to the eastern boundary of that Estate for about half its length.

Apart from a question of traffic, it is doubtful whether the continuation of this road to the north and then round to the east meeting the Dilwara Temple Road would serve any useful purpose and for that reason I refrain from making any proposals with regard to the development of this particular road. The total length of the proposed road to be constructed would be about 5,800' at a cost of Rs 15,000. The construction of this road will form a very important improvement. It should be 20' in width, 12' to the south east of the alignment being carpeted by 6" of metal and 8 feet on the north west being graded and kept as a ride. I am conscious of the fact that this alignment will not show any great financial return on the lands immediately developed by this road as only 10 or 11 plots will be directly affected.

BRANCH ROAD NO. 1

The object of this road is to connect plots Nos 43, 44 and 45 with the Main Abu Road. It follows practically the alignment of the existing track and its construction is therefore a simple matter. The length is 550 feet and the cost of constructing a 20' road with 12' metal surface would be in the neighbourhood of Rs 1,000 only.

BRANCH ROAD NO. 2

This is a branch breaking off the immediate southern end of the Pilgrim Road passing in the north westerly direction giving access to plots Nos 32, 33, 34 and 35. The total length of this branch is 1,200 feet and the estimated cost of construction is Rs 3,000. The only alternative to this access would be by means of culverts across the nullah which intervenes the sites and the Abu Road. The culverting is much more expensive than the road construction.

BRANCH ROAD NO. 3

This road practically means reconstruction of the first 2,000' of the existing Gaurukh Road, a track hardly 6' wide in fact improving the alignment and grade with a view to make it suitable for vehicular traffic. The alignment suggested which is designed to give access to sites Nos 49, 52, 54, 55 and 56 breaks off from the Abu Road from a point 200' south-east of the existing road, will be found to be both easy and economical. The total height ascended in the 2,000' length is about 100' and the estimated cost of constructing a 20' road with 12' metal surface would be in the neighbourhood of Rs. 10,000 inclusive of the three small culverts on the way. The alignment will however not shew any great financial return on the lands developed by it as only 5 plots will be directly affected.

BRANCH ROAD NO. 4

This is intended to connect site Nos 61, 62 and 63 with the Abu High School Road. The total length proposed to be constructed is 900' of a 20' width with 12' metal surface and the estimated cost inclusive of the two nulla crossings would be about Rs 3,000.

In extension of this road by the west side of site No. 63 is the only means of providing access to site Nos 65, 66 and 67 further south west but the proposal would be financially impracticable by reason of the intervention of the very wide Kudra nulla. These sites also, Nos 68 and 69 to the south of Abu High School are rather out of way and for reasons stated above re the difficult of providing access are not likely to find a market unless others are disposed off. The only way to provide an access to site Nos 68 and 69 is by reconstructing the old cart road from where it breaks off from the Abu High School Road to a distance of 600' and by providing a branch road 600' length from this point to the sites on the west.

BRANCH ROAD NO. 5

The object of this branch road is to connect site Nos 23 and 24 in Kishanpura with the Pilgrim Road. It starts from the north east corner of site No. 24 (approximately 1 mile from Abu Road) and runs southward along the foot path on the northern boundary of site No. 25 and across the agricultural land upto the foot of the Kishanpura hill. The length is 700' and the ground is quite plain. The estimated cost of construction of a 20' wide road with 12' metal surface inclusive of the 3 gunthas of agricultural land to be acquired is approximately Rs 1,200.

BRANCH ROAD NO. 6

The road gives access to site Nos 29 and 30 and the alignment shown is the only one practicable owing to the very difficult nature of the ground on other sides. The road is designed to follow one of the approach roads (length 200') to the block of outhouses to the east of the Tidri and continues along the slope of the hill in the north westerly direction to the north west corner of site No. 30. The total width of new construction would be 850' and the grade will not be severe. The estimated cost of construction for 20' width with 12' metal surface is Rs 2,400.

BRANCH ROAD NO. 7

Intended to give access to site No. 20 adjacent to Golf links. Length 600'. Estimated cost of making a 20' road with 12' metal surface is Rs 1,000.

BRANCH ROAD NO. 8

This is a branch breaking off the 4 miles chariar road from a point 2,700' north east of its bifurcation from the Pilgrim Road to the south of Gora-chippa village and intended to give access to site Nos 11 and

12. It traverses fairly good ground and has to cross two very small nullas which could be slabbed over. The estimated cost for the 700' length proposed to be constructed of 20' width and 12' metal surface is approximately Rs. 2,000.

BRANCH ROAD No. 9

This breaks off from the Pilgrim Road (realigned) from a point due west of the military well situated to the south west of the Ajwar site and is intended to connect up sites Nos. 2, 3 and 4 with the Pilgrim Road. The total length proposed to be constructed is 850', and the estimated cost of construction is Rs 2,000. Although the road has been designed to serve the sites severally, it is very likely that the three sites may be sold in a group in which case the length of the proposed road would be shortened by more than 2/3 of its length, leaving only a nominal length to be constructed, which it may be found convenient to leave to the purchaser. The foot-path from the Bikaner House would in this latter course have to be diverted at Government cost, so as to get clear of the sites.

IMPROVING EXISTING ROADS.

I have not considered it necessary in the limits of this report to deal with the improvement of the existing roads; such improvements would be in the nature of widening where necessary.

THE LAKE HOUSE ROAD.

I permit myself a remark on this road to the effect that the first 700' length of this road from the Lake House to the foot of site No. 71 to the north-east should be widened to 16', and the abrupt change in grade at the end of this length removed, so as to provide a good vehicular traffic road to site No. 71. The cost of improvement is expected to be in the neighbourhood of Rs 500 only.

THE SUNSET POINT ROAD.

The 1,600' portion west of the Residency lawns from the junction of two roads to the point where Bayley's walk takes off from the road, is already fairly good but needs resurfacing, which I think could be done at a cost of Rs 500 for a 3" metal surface over 12' width.

It speaks well for the Administration that I have not felt called upon to criticise any of the other roads in the station, which are all generally in very good repair and of reasonable alignment.

VALUATION—BUILDING SITES

In arriving at the site values of individual plots it has been necessary to take into calculation generally eight important factors:—

- (1) Situation of the locality and existing development.
- (2) The area of building lands by comparison to the area of the whole plot.

- (3) Two contours
- (4) Water supply
- (5) Distance from developed area
- (6) Altitude and prospects
- (7) Available garden lands.
- (8) Existence of trees or wood lands

Each of these factors naturally play an important part in the hypothetical purchaser's decision as to the amount that he would pay for certain building sites, and an attempt has been made to average out the views of the market in deciding just the right proportion attributable to the values in respect of each of these factors and it was a most difficult problem as the values had to be so equitably adjusted as to give proper consideration to each of the items

However, an attempt has been made to achieve this end with the results indicated in the general list of values of plots which appear in the appendix No 1. When discussing the merits of the plots and the opinion expressed that one plot is better than the other, it does not necessarily mean that the rate per acre of the first plot is greater than the second, for in the case of a very small and compact plot it might be eminently suitable for the erection of a small house without much wastage of surplus lands, whereas in the case of a larger plot, it would be more suited for a more pretentious development

A very careful consideration has been paid to the merits of individual sites, and the valuation shows my estimates of the values of those sites as they exist to day and as they would be after the construction of the roads indicated in another part of this report

It must be clearly understood that the values shown presuppose the existence of a certain market for the land. To all intents and purposes no lands have been in recent years either sold or leased, and it is a matter of speculation as to what the market would be like assuming the property is put up for auction. However, the prices given may be taken as being the present day rates, and immediately the plots are sold the areas in the neighbourhood would tend to slightly rise in value. It may generally be stated that the total value of the lands shown as building sites represent their value today on the assumption that the roads proposed have been constructed

I attach in the form of an appendix (No 2) a complete list of all the building sites in numerical order with a brief description of the individual boundaries, which could be suitably printed for circulation to intending purchasers and used with advantage in conjunction with the small scale map I have prepared for general use. This 6" map shows all the building sites as well as all existing bungalows

FINANCE

I also attach to the report appendix No 3 which takes the form of a financial summary giving the cost of carrying out the development of

the building sites as well as the incremental value resulting from such development. From this statement it will be seen that the total incremental value of the lands developed amounts to Rs 36,400 to which must be properly added Rs 89,600 the capitalized ground rent accruing from such development. These two figures amount to Rs 1,26,00. On the debit side the expenditure totals Rs 1,09,000 but naturally includes the cost of construction of what may be properly termed unremunerative roads as for example the large part of the four mile chukkar road and a considerable portion of the Pilgrim Road. Neither the debit nor the credit side has been discounted on the basis of actual development and disposal, for it is perfectly clear that it would be only a waste of money to construct more roads than are absolutely necessary to meet the current demand as it arises and in the same way it would be wrong to assume that increments will be immediately payable without the construction of roads or indeed even assuming they are all at once constructed. Actuarially therefore it will be quite wrong to include the total value of all the building plots in the Municipal balance sheet as an asset at the figure of Rs 4,30,000 and it is quite beyond the powers of any valuer or actuary to state with any accuracy what figure should be adopted for such a purpose. The most that could be done is to defer the total value for a period of years during which it might reasonably be supposed that the lands would find purchasers in the market. If we take an outside estimate of such a period say 20 years then the present value of building sites might properly be stated at Rs 2,40,000 and it would be reasonable on this basis to take the present cost of development assuming complete construction to 16 years. This would reduce the present value of this expenditure to Rs 87,630. In this way the difference between income and expenditure is Rs 1,52,350.

BUILDING SITES IN DETAIL

In the absence of any particular nomenclature to the sites I have attempted to classify them in groups more or less defined with respect to their general relationship to known roads or localities. These groups are 8 in number and in addition there are a few isolated cases of individual plots.

The eight groups

- 1 The Bikaner Group
- 2 The four miles chukkar group
- 3 Golf Links group
- 4 Kal Chappra--Torna group
- 5 Tahsil group
- 6 Abu Road group
- 7 Gaomukh Road group
- 8 Abu High School group

The number given to the site in this report corresponds with the site number on the plan

Site No 1

Area	8 acres.
Locality	Four-mile chukkar road
Distance by Road from Post Office	1.8 miles
Approximate altitude of the position for building	3,880 feet.

The site is situated to the north-east corner of Alwar site and is bounded on north east and partly on the west by the four mile Chukkar Road and on the south and partly on the west by the Alwar site. It consists of a high hill with rapidly falling slopes and fairly good ground for building on the top, which commands extensive views all round. The difficulty of water supply and the out of the way position of site which latter renders it difficult to provide it with a pucca access to site are however detractive features. Value 500 rupees per acre.

THE BIKANER GROUP

Consists of sites numbered 2 3 and 4 and is situate to the east of Bikaner House, extending as far as the existing Pilgrim Road on the east. The group has the peculiar advantage of being in a more or less developed locality, has a potential access over the northern portion of the Pilgrim Road and has a well in the vicinity for water supply. A pucca access over a 20 road (Branch Road No 9) is being provided for under the scheme in order to connect the sites with the proposed Pilgrim Road which runs close by on the east.

Site No	Area acres	Distance by road from 2 O mile	Altitude	Value as existing per acre	Value as developed per acre
2	3	1.42	3,880	Rs 80	Rs 1100
3	2	1.42	3,880	Rs 100	Rs 1500
4	3.0	1.42	3,880	Rs 120	Rs 1025

I consider site No 2 as the best owing to its higher altitude and commanding position. Next in importance come Nos 4 and 3 respectively, the former of which has comparatively better ground for building.

Site No 5—Area 7-12 acres. Distance by road from post office 1 mile. Approximate altitude of position for building 3,880 feet. This is a nice high site situated on the Pilgrim Road to the east of Gora Chupre village. The site commands extensive views all round, but the rapidly falling slopes would necessitate terrace development for the sides, and a

certain amount of levelling at top. This is a case where the actual building area is restricted on account of the rugged slopes especially on the north and west. The burial ground to the east is very much lower and the drawback is more apparent than real. The site has a ready access on the Pilgrim Road and facilities for a well on the nullah to the north east.

Value as existing Rs 800 per acre.

Value as developed Rs 900 per acre

THE FOUR MILE CHUKKAR GROUP

Consists of site Nos 6 to 16 inclusive. In all 11 sites with an aggregate area of 66 acres. The group is situated to the south east of the Alwar site and with the exception of site Nos 11, 12 and 16 all the sites are directly on the four mile chukkar road. Of these plots 6, 7, 8, 9 (of which 6, 7 and 8 are coterminous with the eastern Alwar boundary) are situated to the west and the remainder to the east of the road. They have thus a kutchha access at present, which under the Scheme, I am proposing to convert into a metalled road 20' wide. I refer to this under the chapter on "Traffic communications", branch road No 8 will provide access to sites Nos 11 and 12 which are situated at a distance from the road towards east.

Site Nos	Area acres	Distance by road from P O miles	Altitude of position for building	Value as existing per acre	Value as developed per acre
6	4.86	1.58	3,900	650	700
7	3.75	1.43	3,800	650	800
8	3.6	1.36	3,840	750	950
9	3.5	1.28	3,800	800	750
10	5.5	1.5	3,840	650	775
11	5.2	1.72	3,800	700	775
12	6	1.55	3,800	600	750
13	3.25	1	3,800	700	850
14	4	1	3,420	850	1,000
15	3	1	3,815	800	950
16	3.2	1.5	3,870	800	

Sites 6, 7, 8 and 9—Are more or less uniform as regards amenities. No 8 is the best as it has the advantage of possessing plenty of good building ground. Next in order of merit are Nos 7, 9 and 6. Costly

provided with an access—branch road No 7 under the scheme. The well in front of the Dak Bungalow could be used for water-supply.

Site Nos	Area acres	Distance by road from I.O. notes	Approximate altitude of the building position	Value as existing	Value as developed
				Rs	Rs
17	2.25	0.80	1500	1200	
18	3.4	0.4	3,800	600	800
19	2	0.43	3,800	575	900
20	2.7	0.60	3,800	600	800

I consider site No 17 the best of the group and 19, 18 and 20 next in order from valuation point of view.

Site No 17—As previously indicated this site has the advantage of being on a good metalled road. The big boulders at top at first sight seem to screen off the front but in the hands of a good developer this feature could be very nicely utilized to add to the beauty of the site. The boulders add a peculiar natural beauty to the land and with the building behind them amongst the shady trees and a garden on the flat piece of land in the forefront to the north west a nice effect would result. The building point referred to has a nice view of the station to the north west.

Site No 18—This is situated to the west of Kumbharwara village but sufficiently removed (200') from it. A fairly good site but with steep rocky slopes especially to the south west on the road side. A fine big tree is perched on top. The eastern portion of the site could be developed at a small cost into a small building plot with access from the four in no chukkar road. His facilitates for a well so the nullah to the south west. The burial grounds to the south are it is understood now closed up since two years nevertheless they act to a certain extent as a detracting feature.

Site No 19—This is close to R.C. Chapel and its highest portion consists in fact of a big rocky crag. The other portion is fairly woody and the whole has easy access and water supply.

Site No 20—Under existing conditions this site has little building ground on top owing to the rocky outcrop running east and west along the whole length of site. A systematic cut and fill operation would render the site useful for a small bungalow. It is in a developed locality and has been provided with an access under the scheme.

THE KALA CHUPPRA—TORMA GROUP

This group consists of sites numbered 21 to 28 inclusive. With the exception of site Nos 23 and 24 which are at a distance of 600' east of the road and consequently requiring the provision of a special access,

it is situated on the Pilgrim Road between Kala Chappra and Torna villages. Access to these is given by branch road No 5. Site Nos 26, 27 and 28 are situated to the west of the Pilgrim Road and are separated from it by the ' Nadi ' a very large stream which would involve construction of costly bridges if the sites were to be provided with pucca approaches. As this is impracticable as an economic proportion no pucca access to these sites has been attempted under the scheme. The sites are however within a reasonable distance of the station and are likely to find a market sooner or later.

Site No.	Area, acres	Distance by road from I.O. miles	Approximate altitude of the position for building	Value as existing	Value as developed
21	4	0.82	3,850	575	850
22	3.75	1.16	3,800	475	750
23	6.85	1.23	3,870	500	725
24	3.35	1.26	3,800	560	800
25	6.00	1.21	3,780	660	975
26	6.00	1.32	3,860	450	
27	6.16	1.30	3,850	450	
28	6.60	1.30	3,850	450	

Site No 21 is in my opinion the best and Nos 25 24 23 22 and 26 to 28 come next in order of merit.

Site No 21—This is situated between the Kumharwara and Torna villages and has a direct access over the Pilgrim Road which runs close to its northern boundary. The site falls rapidly on all sides except the west, but affords good ground for building at the top. It commands good prospects on all sides and has a couple of fine big trees on it.

Site No 22—This is coterminous with No 21 on its south west boundary and mostly consists of rough and rocky ground with the exception of one fairly good plot of land to the north west fit for a small bungalow. The site has certain amount of prospects especially to the north west but the burning ghats in the nulla to the south west is a decided disadvantage.

Site Nos 23 and 24—These are close to Kala Chappra village and form part of the hill situated to its east. No 23 which is to the north east is the top of the hill and No 24 to the south east is a natural terrace on the hill side. While the former is mostly rough and rocky the latter consists of good ground for building. The one good point with regard to No 23 is however its high altitude and consequential good prospects under command. The wall in the nulla to the south would serve

both the sites. The burial grounds, now closed which are situated below the high cliffs on the north west cannot be considered as a disqualification.

Site No. 25 — This is the next best site of this group. It is directly on the Pilgrim Road, has a well to its south west in the nulla close by and fairly good ground to build upon. A certain amount of filling up would be required to make good the dips and hollows but the result would be very effective.

Site Nos. 26, 27 and 28 — The impracticability of providing a pucca access to these sites has been referred to already. They are situated on three adjacent ridges to the east of site No. 25 and overlooking the 'Nadi' and are almost similar to each other in features, amenities and prospects. The rapid slopes would involve the usual hill side development. Considering these disabilities their value must be very low.

THE TAHSI GROUP

In this grouping are mentioned sites numbered 29 to 36 inclusive, situated between the Tahsil and the existing Pilgrim Road to the south east. With the exception of site 36 which has a frontage on Abu Road, all the sites have been provided with pucca access roads under the Scheme. Sites 31, 37 and 38 will have frontages on the proposed Pilgrim Road, whereas branch roads Nos. 6 and 2 will provide access to sites 29 and 30 and to 32, 33, 34 and 35 respectively. The group is not far from the developed locality and being mostly situated in the vicinity of Abu Road is likely to be disposed of comparatively early.

Site No	Area, acres.	Distance by road from P. O., miles	Approximate altitude of the position for building	Value as existing per acre.	Value as developed, per acre
29	5.5	1	3,900	675	900
30	7.85	1	3,900	650	1,000
31	7	1.26	3,730	200	300
32	11.0	1.16	3,730	145	100
33	6	1.4	3,800	540	700
34	4.1	1.4	3,830	520	750
35	5.7	1.4	3,770	500	1,000
36	2.25	1	3,760	300	—
37	2.9	1.29	3,780	700	900
38	3.38	1.26	3,800	925	1,050

Site Nos. 29 and 30.—These are situated to the north east of the Tahsil and have been provided with access over branch road No. 6. They are high and airy and 30 has a couple of fine big mango trees in it. The drawback to this latter site however is the existence of the incinerator and night soil depôt situated immediately to its south west. The position of these works is such that a great portion of this site, which consists of a beautiful high plateau with fine prospects is subjected to the foul smells carried by the winds, and the source of objection must be removed. I suggest an alternative site for them in another part of this report. As it is, the existence of these works has caused the value of this site as a building site to be very much depreciated. The value of site 29 is also to a certain extent prejudiced by these works, for although the site itself is further north east, one has to pass the objectionable works in approaching the site. As regards water-supply, the well adjacent to Tahsil could be utilized.

Site No. 31.—With a frontage on Pilgrim Road it is however a poor site due to the existence of two nullas throughout the length of the site from south to north. They are natural torrents during the rains and it is quite impossible to attempt any diversion. The contours are abrupt and building construction could only take place after extensive terracing is completed. This is one of the least eligible sites for the reasons above stated, and I imagine it will be the last to be built on. Its value cannot be more than Rs. 300 per acre.

Site No. 32.—This site forms the centre of the group of 9 sites to the north of Abu Road, and is the highest and best of the whole group. The water-supply is assured as there is a well containing potable water to the south adjoining branch road No. 2 which provides access to the site.

Site Nos. 33, 34 and 37.—These are rough and rocky and would entail heavy expenditure for levelling in order to make them suitable for building. Access to 33 and 34 is provided by branch road No. 2, and 37 will have a frontage on the new Pilgrim Road along its eastern boundary. The well referred to in site No. 32 may also be used to serve these sites. It is doubtful however if site 33 will be sought after with other lands available, owing to the difficulty of developing it. The branch road merely gives access to its southern portion whereas the highest and northern part of the plot would require extensive internal development to give access to it. The only good part is its commanding position and this is especially true of the northern portion of the site.

Site No. 35.—This is a charming little site with good building ground at top, a few fine shady trees and a well near by (referred to under site 32). The cultivable ground at the south west corner on the bank of the nulla is an amenity.

Site No. 36.—It is situated on Abu Road from which it has a direct access. It is ripe for immediate development and has facilities for a well in the nulla on the north west. This is one of the nearest sites to the developed part of Abu, but it has the disadvantage of being comparatively low-lying, and its surface is rocky and uneven. Like all sites

fronting a main road it must be subjected to dust from passing traffic. Its position on Abu Road however must give it a certain added value in the eyes of the purchaser who likes to be in an established thoroughfare.

Site No. 38—Lake No. 35 this is also a charming little site possessing fairly good building ground at top and the advantage of a well in the south west corner and a small piece of cultivable land. The site may be said to have some sort of access along the existing Pilgrim Road but it is more nominal than real due to the road being impassable for vehicular traffic.

Site No. 39

Area	12.75 acres
Distance by road from Post Office in miles	1.54
Approximate altitude of the position for building	3,600 feet

This is another site of the same category as 26, 27 and 28 situated to the north east of the Dhundari village on a high plateau but with fairly good building ground at top. Had it not been for the difficulty of providing a pucca access the site would have been one of the first class ones. Value per acre Rs. 450.

THE ABU ROAD GROUP

The group which is situated to the east of the Abu Road and High School Road junction consists of 9 sites Nos. 40 to 48 inclusive all having frontage on Abu Road with the exception of site Nos. 41, 43 and 44, which latter have been provided with a pucca access along branch road No. 1. Site No. 47 has an additional frontage on Abu High School Road. The public well at the north end of the Kudra Nullah bridge could serve the whole of the group for its water supply.

Site No.	Area, acres	Distance by road from P. O. in miles	Approximate altitude of the position for building	Value as existing per acre.		Value as developed
				Feet.	Rs.	
40	10	1.5	3,670		2,000	
41	0.4	1.5	3,700		600	875
42	2.9	1.5	3,750		875	
43	6.15	1.52	3,800		500	750
44	4.5	1.07	3,770		625	875
45	4.4	1.0	3,770		800	960
46	2.75	1.0	3,740		875	
47	2.00	1.41	3,770		1,025	
48	1.40	1.00	3,770		1,000	

Site Nos. 40, 41 and 42—As a building site, I consider site No 40 as the best of the group as in addition to its having a ready access and water supply it has the advantage of high altitude and consequently very nice prospects. The top portion could with little expense be rendered capable of accommodating 2 or 3 bungalows with appertinent buildings. A smaller summer house may be perched on the prominent rocky projection overlooking the Abu Road, thus adding to the charm of the site. Nos 41 and 42 which although coterminous with this site, are much inferior to it, especially the former, which is rather in the background and has bad contours. No 42 has fairly good contours but is comparatively very low.

Site Nos. 43, 44 and 45—This is the furthermost group on the Abu Road and is situated on a ridge running west to east to the east of the Kudra Nulla Bridge. The group has a certain amount of access over the katcha track running along its northern boundary but in order to make it fit for vehicular traffic, the track is proposed to be reconstructed (Branch Road No 1 on plan).

Site No 45 which is situated on the western end of the bridge has good building ground at top and has a couple of fine trees. The public well referred to already is nearest to this site. Site No 44 is lower than this in quality and site No 43 still lower, as the latter has rapid slopes requiring costly terracing to prepare it for building on. It has one good point over others however, in the fact that its height commands better prospects than the other two.

Site No 46—This is opposite to No 45 and is girdled by the Kudra Nulla on its north and west and is just east of the Abu Road. It has a good flat piece of land in the forefront which however is only a few feet above road level and is consequently liable to dust and nuisance from passing traffic. The higher portion towards south is sloping ground, necessitating the usual hill side development.

Sites Nos. 47 and 48—They are situated to the south of Abu Road between the Abu High School Road on west and the Kudra Nulla on the east. Both have frontages on Abu Road but site 47 has the advantage of height and of a fine big tree on it. The excise chowki at the north-west corner of site 47 may be removed from there and be erected opposite the take off of the new Pilgrim Road where there is a suitable plot for it. Site No 48 is cut up by a small nulla which could be diverted along the common boundary of 47 and 48 to the west, but the cost would be prohibitive especially as the site is small.

THE GAONUKH ROAD GROUP

The group which is situated between the Gaonukh Road and the Abu High School Road, consists of 8 sites Nos 49 to 56 inclusive. Of these sites, three, viz., 50, 51 and 53 have frontages on metalled roads, the first two on Abu Road, and the third on Abu High School Road, while

the remaining 5 sites have been provided, under the scheme, with a pucca access along Branch Road No 8, which with the exception of the first 500' length mostly follows the existing alignment of the Geomukh Road. These five sites are rather out of the way, and have the further disadvantage of having no suitable spot for a well nearby as the sites are mostly on rocky hill tops.

Site No	Area, acres.	Distance by road from P. O. in miles	Approximate altitude of the position for building	Value as existing, per acre.	Value as developed, per acre.
				Rs.	Rs.
49	3.2	1.2	3,840	600	750
50	3.6	1.27	3,880	800	..
51	3.4	1.50	3,920	750	
52	6.9	1.40	3,900	650	775
53	5.18	1.47	3,860	725	
54	5.5	1.27	3,100	525	725
55	8.3	1.43	3,560	500	500
56	3.75	1.46	3,870	600	725

I consider site No 50 as the best of the group, next in order being 51, 53, 52, 54, 49, 56 and 55. Site 52 is high and commanding and has better contours than 50, but it has the disadvantage of being to the back ground, and has difficulty of water supply. Sites 53 and 51 come next in value as building sites. Both have the advantage of a road frontage as well as proximity to water supply, but the latter has bad contours, whereas Nos 54, 56 and 55 are a little better in this respect. Site No 55 however is mostly rocky and its value as a building site must be very low.

ABU HIGH SCHOOL GROUP

In this group which is situated around the Abu High School is included sites Nos 57 to 69, in all 13 sites of which 5 viz., 57, 58, 59, 60 and 64 have frontages on Abu High School Road, and have wells in their vicinity. Consequently they are ripe for building development. The existence of the High School nearby has to a certain extent developed the locality already. Sites Nos 61, 62 and 63 have been specially provided with an access, under the scheme, by means of Branch Road No 4. The remaining 5 sites, viz., 65, 66, 67, 68 and 69 are out of the way and the practicability of the provision of a pucca access to them is

distinctly doubtful and this is dealt with under the heading of Traffic communications

Site No.	Area, acres	Distance by road from P. O. in miles.	Approximate altitude of the position for building	Value as existing per acre	Value as developed, per acre
57	1.78	1.50	2,760	900	
58	2.9	1.56	3,850	700	750
59	4.1	1.65	3,570	950	
60	1.00	1.4	2,750	980	
61	4.2	1.52	3,850	600	700
62	3.2	1.68	3,730	825	725
63	4.3	1.40	3,510	650	800
64	5.89	1.76	3,835	1000	
65	4.00	2.00	3,350	875	
66	2.40	2.1	3,810	875	
67	4.10	2.02	3,690	85	
68	3.46	2.2	3,000	450	
69	2.86	2.23	3,065	450	

Site Nos 57, 58, 59, 60 and 64—At once ripe for development as they have a ready access and a convenient water supply. I consider site No 64 which is situated on the hill to the north of the Abu High School as the best of the group. It is high with good building ground and fine woody slopes. The site commands beautiful prospects on all sides.

Next in order of merit are 59, 60, 57 and 58. The first three are more or less flat sites practically at road level, they have good building ground and existing trees on them which is a great amenity. Nos 57 and 60 are each only capable of accommodating a single bungalow but site No 59 could with little expense be made to provide for two. Site No 58 has the advantage of height but the contours are not good.

Site Nos 61, 62 and 63—These are situated to the north west of the Abu High School and 61 and 62 are coterminous with each other. Site No 63 is the best of the three, due to its having better contours than Nos 61 and 62, which have an undulating surface which requires to be levelled up to make it fit for building. All the three sites are fairly woody and the existence of nullas closeby would render it not very difficult to find a suitable spot for digging a well for their water supply.

Site Nos. 65, 66 and 67—This group is situated to the west of Abu High School and the Audra Nullah has to be crossed to get at them. The difficulty of providing an access to the group has been already alluded to. The sites themselves are of a poor nature as regards contours and other features and hence are not likely to be disposed of until no others are available. Their value must therefore be necessarily low.

Site Nos. 68 and 69—These are situate on the hill to the south of Abu High School and are over two miles from the centre of activity. They are high and airy and have fairly good contours; but their remoteness as well as the impracticability of providing a pucca access to them are detracting features so far as their value as building sites is concerned.

SITES ON LAKE HOUSE-DILWARA ROAD

Sites Nos. 70 and 71—These are situated to the north of the above road and have frontages on it. Site No. 70 is to the north of the Rajputana Club. It is bounded on the north by the boundary limit of the leased area between pillars Nos. 52 and 53. Site No. 71 is to the north of Swinley Lodge and is decidedly the better of the two by reason of its having better contours and a piece of flat land at the top which appears to have been put to agricultural use although it does not seem to be very well suited for it. The farm house on it is only a derelict structure. Both the sites are practically in a developed locality, and have ready facilities for water supply. The existing paths leading to Athurdov and the Crags through site No. 70 need diversion which could be easily done.

Site No. 72—This site is situated to the east of the junction of the Lake House and the Anadra Roads and consists of a huge mass of rock. It is a high site and commands a beautiful view of the Nakhi Lake but the difficult and rocky ground of which it mainly consists would require a tremendous expense to develop it as a building site consequently its value under existing conditions must naturally be low.

Site No.	Acre, acres.	Distance by road from P. O. in m. les	Appraise rate a tithe of the p. o. : m. for building.	Value as ex. of p. o.	Value as developed
70	4.15	0.63	9,000	875	—Ba.
71	4.00	0.63	5,500	1,000	1,100
72	8.6	0.32	3,050	985	—

SITES ON THE NAKHI LAKE

Sites Nos. 73, 74, 77 and 78—Of these site Nos. 73 and 74 are situated to the north of the lake, site No. 77 to the west and site No. 78 to the south. The sites are mostly rocky especially Nos. 73, 74 and 77.

1 have an undulating surface and it would cost a great deal to develop them as building sites. Being situated on the edge of this beautiful lake however, they would make grand building sites if properly developed.

Site No	Area, acre.	Distance by road from P. O. in miles.	Approximate altitude of the position for building	Value as existing, per acre	Value as developed per acre
				Rs	Rs
73	4.00	0.78	3,830	800	
74	5.4	2.37	3,830	800	
77	5.3	1.60	3,930	800	.
78	3.8	0.95	3,970	850	...

SITES ON ROBERT'S SPUR

Site Nos. 75 and 76—These sites are situated on the western boundary of the leased area between the Anadra Road and boundary pillar No. 43 which is actually built on the place locally known as Robert's Spur. The Dhiobighat Nulla which flows down from the Nakki Lake separates these sites from the Anadra Road, but a crossing is not very difficult. Site No. 75 is the better of the two, as it is a level plot with plenty of shady trees, whereas No. 76 although higher than 75 is very undulating and is almost barren. The locality however, is very lonely and there is more than a danger of pollution from the Dhiobi Nulla if a well is constructed in the Nulla referred to. These are serious disadvantages, and it is very likely this pair of sites will not be in much demand by the ordinary person in the market.

Site No	Area, acre.	Distance by road from P. O. in miles	Approximate altitude of the position for building	Value as existing, per acre	Value as developed, per acre
				Rs	Rs
75	3.1	1.20	3,710	800	...
76	8.2	1.29	3,700	600	

SITES ON SUNSET POINT ROAD

Site Nos. 79, 80, 81 and 82—These sites have frontages on the Sunset Point Road which is a fairly good road for vehicular traffic except for a portion on the west (proposals for the improvement of which are being made under the chapter "Traffic communications"). Site Nos. 79 and 80 which are situated to the south and west of the Residency lawns are nice little building sites already in a developed locality and possessing

all the anomalies necessary for building development. Although not very high both have a raised plot of ground suitable for a small bungalow and have a portion of low ground each which could be laid out as a garden.

With regard to Nos 81 and 82 whereas the former is sloping rock of great height for the greater portion the latter is quite a plain site a few feet above road level and capable of immediate development. The former is barren and the latter profusely woody. It is possible a well could be dug at the south east corner of site 81 close to the Nulls running nearby. The loneliness of the locality is however a disadvantage to the sites.

Site No.	Area, acres	Distance by road from P. O. in miles	Approximate altitude of the position for building	Value as existing per acre	Value as developed per acre
79	21	0.60	3,820	120	125
80	13	0.95	3,820	1200	1200
81	0.00	1.4	2,070	000	000
82	2.42	1.37	2,070	80	800

IMPROVEMENT OF BAZAAR AREA

The Executive Engineer supplied me with the original plan on 33 feet to an inch of survey made in 1919—I understand by means of a theodolite and plane table,—in order that my recommendations should be on definite lines, I thought it necessary to have this plan checked and for this purpose the Executive Engineer very kindly placed a surveyor at my disposal. The results have shown that this precautionary measure was necessary inasmuch as one of the important road alignments in this plan was very much out. For example, the portion of the Post Office road from its junction in front of Bansi well with the Bharatpur road right up to the junction at the South West of the Church. A check measurement taken from the South West corner of the Municipal cattle shed in line with its front face to the centre of the Post Office road showed the actual distance to be 58' whereas the plan showed 80'—a deviation of 22 feet.

I have had the plan corrected as far as the time at my disposal would allow and am attaching herewith a plan which has been brought up to date. On this plan I have shown in various proposals in distinct colours and in this way I have made it as far as possible self explanatory. The Municipality recognises that improvements to the Bazaar area are necessary and there is therefore no need for me to discuss the subject from this point of view.

In discussing the bazaar area I generally refer to the properties bounded on the North by the road in front of Sirohi Vakalat and the Telegraph Office, on the East by the church and Post Office road, on the South by the Trevor Oval and on the West by the Bharatpur road along the Agent to the Governor General in Rajputana's kitchen garden and the Anglo Vernacular School. The total area is approximately 15 acres, and contains 300 buildings used almost entirely for residential purposes, 110 houses and shops combined, and 2 cattle sheds and stables with a total population as in 1921 of 1,675 made up of :—

Trading class	.	.	.	.	.	.	600
Butchers	.	.	.	.	.	.	60
Others	.	.	.	.	.	.	216
Artisans	.	.	.	.	.	.	60
Coolies	.	.	.	.	.	.	500

From returns in Magistrate's office, I understand there are 50 cattle privately owned, of which 30 are tethered in the Bazaar, and 20 municipal. One of my proposals contains suggestions for the erection of jhacca cattle stable in which it is desirable that all the bullocks and buffaloes kept in the area should be properly housed. It is necessary to point out that the stabling of bullocks, etc., within the immediate precincts of residences such as we find in this area is most undesirable and very insanitary.

The area generally slopes from the North-East with a more abrupt fall from the East from the Post Office road which is so named locally for want of some official designation. Land also slopes from the Telegraph Office road, from the West and North; the total result of these contours is that the centre of the line running approximately North-East to South-West forms a natural nullah which collects the surface drainage from a considerably large area on the North-East. Practically no attempt has been made in the past to deal with this surface drainage or to train the afore-aid nullah with the result that it more or less wanders hap-hazard over the South-East portion of the area. I make brief recommendations for dealing with this portion.

It should be at once understood that any proposals which I have made are governed by the fact that so far as can be ascertained no large capital sum is available for expensive acquisitions and the result is that I have attempted not an ideal development scheme but an improvement of the whole area which should be within the realms of possibility of execution. This being so I do not attempt any drastic changes in the main bazaar road which are flanked on either side generally, by properties of old standing in the form of shops and residences any interference with which would naturally mean heavy expenditure. I have confined my proposals to the treatment of the bazaar proper, to improvement of gradients where possible and provision of surface drainage facilities.

GENERAL DEVELOPMENT

I now come to the consideration of the general development of the bazaar area and very little is required to be said in this connection as the whole of my scheme has been shown on the accompanying pl No 847

The whole scheme resolves itself into the acquisition and demolition of insanitary properties where the cost of acquisition would not be prohibitive and the construction of subsidiary roads which would allow of suitable building sites to be provided. An important feature is the realignment of the road running to the South West of the area and North-East of Trevor Oval. The plan will indicate that I have completely changed this alignment in order to make the road itself a boundary to the Oval proper. This would bring into use a good deal of the existing waste land involves the removal of the male latrines and will provide excellent building sites overlooking the Oval. There is an existing group of trees almost opposite the Dill Kushe bungalows which I should like to see preserved but I feel it is impracticable as their preservation would entail a very objectionable alignment, and I have therefore reluctantly had to provide for their removal. These sites will I think be in considerable demand and should realize good prices. I have not attempted to arbitrarily lay down the actual areas of the individual sites and my divisions into plots are only intended to serve as an indication as to what I think might be suitable areas. Naturally the plan and estimates of any buildings which would be allowed to be constructed will receive careful scrutiny, and attention could be paid to the area of the plot which will be allowed to be covered by building. Generally speaking in a development of this character I should not allow detached buildings facing the Oval to occupy more than a 1/3rd area of the plot. Were I dealing with the plots without the advantage of this large open space in front of them I should insist upon 1/4th area being left open. I should recommend that sufficient open space be left between houses to allow of the free percolation of breezes into the interior. With regard to the roads in the interior there would be no objection to having buildings erected in blocks of four or five with party walls. This is a desirable form of construction and allow of buildings being erected at a minimum of cost and the land being developed as economically as possible. There is a certain demand for more shops and this can easily be met, with the land at disposal.

EXISTING BUILDINGS

A brief allusion has already been made to the shops forming the bazaar proper. In addition to these properties other residences are spread haphazard in more or less close proximity to the bazaar proper with the exception of a line of buildings more or less coterminous, which runs from the South West of the main bazaar in the direction of the Trevor Oval. This spur contains 15 pucca structures and the remainder 50, can be generally described as being little more than huts. I am

recommending that a certain number of these huts should be acquired and demolished, and the area resulting thrown into the adjoining open land

ROAD CONSTRUCTION

In Bazaar Proper

Under the heading of drainage, I have indicated my proposals in respect of the formation of this road in so far as the question of drainage is concerned. For sections and cross sections of proposals please see plan No 849

It is apparent that the present surfacing by means of loosely dressed slabs of stone is entirely unsatisfactory. The best possible surface having regard to the gradient and user would be asphalt or one of the several bituminous compounds.

On the score of expense asphalt construction must be ruled out but I think an asphaltic concrete surface having as its aggregate the very excellent local stone should be within the range of practical politics. There is very little if any, heavy traffic and the following mixture will give excellent results

By weight	50 per cent.	%" stone stone chippings sand bitumen
	10	
	13	
	7	

I need hardly add that the mineral and the bitumen should be separately heated to about 300° to 350° Fahr before mixing. If laid at a temperature of about 250° Fahr evenly spread to the required formation and rolled with a thin layer of stone chippings across the road and finally with a heavy roller in the direction of the alignment a road surface will be reproduced which will last with the present form of traffic for 50 years or more.

If it is decided that a bituminous material is too expensive then ordinary concrete with a cement floating should be considered.

Ordinary waterbound macadam would be unsatisfactory for obvious reasons of gradient and rainfall. For the road will be largely a road in name only and more really a foot passage.

REGRADING AND SURFACING

The regrading of all roads is a somewhat difficult problem, due to the plinths of the existing buildings. The road bazaar is particularly difficult for improvement in this respect, but it is not necessary to deal with that in detail as I understand, the Executive Engineer at Abu has already worked out proposals under this head, in which he suggests the repaving of the main bazaar with stoneflags. My previous remarks will make it clear that I do not think, this is the best possible treatment.

BRANCH ROADS

The branch road *K L M* connecting the bazaar with the Telegraph Office road can be considerably improved by cutting away the protruding rock to the south west of the Sirohi Vakilat house and improving the junction at *L* so as to give a uniform gradient. The road is particularly bad at *M*, and its width should be improved by acquiring a portion of the open ground forming part of the compound of the property to the South West. This is more particularly shown on plan No 824. The branch road *N P* connecting the end of the bazaar road with the Telegraph Office road near Adam a Hospital can be improved by filling in a little along the portion of its length about the centre, but I fear, this is as much as can be done to reduce this somewhat abrupt slope at either end. The existing roadway to the North West of the houses Nos 82 to 88 and to the North East of houses Nos 79 to 81 requires to be filled in by a depth of 12 inches in order to prevent the flooding which is a common experience to the adjoining properties during the rains.

NEW ROADS

The plan No 824 shows in detail the proposed new roads to be constructed. The total length of these new roads is 8,000 ft. They may be divided into two classes (1) 40 ft road to the North East of the Oval, and (2) 20 feet roads improving the existing properties and opening up new lands suitable for building purposes. In addition to these roads there are two access lanes each of 14 ft in width which are provided for, one to the extreme South West of the estate giving access to a group of latrines and another to the North East giving access to another group of latrines. They are marked on the plan by letters *F G* and *H J* respectively. The estimate of cost of construction of these new roads is included in Appendix No 7 which gives a total estimate of cost of the whole of the works included in this part of the scheme, from which it will be seen that the total estimate of cost in respect of these new roads is approximately Rs 9,000. The 40 ft road *A B* marked on the plan requires to be constructed throughout the length of 380 ft and then in continuation to the North West along the existing alignment widened to the North-East of the said alignment. There is like most of the lands in Abo an excellent foundation to the roads already existing and it should have only 6" metal surface.

The description of the 20 ft roads is quite unnecessary as the plan itself is self-explanatory. All these roads have comparatively easy gradients and should be water bound and macadam constructed.

For the surfaces of the proposed new traffic bazaar roads, which have easy gradients and for the ordinary access roads water bound macadam would be the cheapest, but if funds are available by all means tar macadam.

SANITATION

The sanitation of the area under consideration is bad beyond description. I have personally seen children answering calls of nature in

the open land not far from dwelling houses and no amount of regulation would stop this. It will require an army of sanitary officers dotted all over the place if this practice is to be prevented. Even for adults the existing sanitary arrangement with latrines often at a great distance from their residences entail a considerable amount of trouble and inconvenience. I consider this question of the provision of latrines to be the most difficult of all the problems which have to be considered. For it must be remembered that unless reasonable facilities are offered, human nature being what it is, the people will not be prevailed upon to take long walks to answer calls of nature especially in hours of darkness when they are not under observation. The position of the existing latrines set apart for the use of males is highly inconvenient, and furthermore is most objectionable from the point of view of the general public. Their construction is elementary in the extreme and they are objectionable from almost every stand point. I really think that the best solution would be to have latrines dotted about at more or less frequent intervals rather than to have great blocks separated by considerable distances from the residences of the people who are expected to use them.

I have advanced somewhat in this direction by allocating in the plan five different sites, four of which are to actually serve as sites for latrines for the residential area and one in the nature of a public latrine just opposite the Post Office road, between the road and the bhisti-well. The latrines are shown on plan No. 847 in yellow wash.

The portable type of latrine at present in use should be abandoned for simple water flushing groups of say half a dozen seats in each group. A non-porous connecting trough under the seats could be flushed at intervals by a bhisti responsible for a series of groups. The trough would naturally be so graded as to allow of the rapid carrying away of the excreta into a collecting tank. This tank could either be of a portable variety or in the shape of a cesspool with a trap, a water seal and hermetically closed. It could be pumped out as occasion required into a sealed cart and taken away for disposal during specified hours. There is no reason at all why the contents should not be trenched on suitable grounds with the ultimate benefit to agriculture in the form of manure. The form of latrine I have described has been used with considerable advantage in other small towns. In this way, I am convinced, and in this way alone, will the only solution to the existing problem be found. It may be said that a great deal of expense will have to be incurred but I venture to suggest that the ultimate gain will far outweigh any initial cost. There would be no danger from flies and no smell. I am quite aware in making these proposals that water is not abundant but a large quantity will not be required for flushing purposes if the arrangements are scientifically carried out. At a rough estimate, it may be stated that probably a provision of a gallon per diem for 10 persons would be sufficient. This would mean a total consumption of 150 gallons per day or say 200 gallons for 1,500 people. The total resulting sewage might be taken at under 250 gallons per

day which would represent the quantity which would have to be disposed of either daily, weekly or monthly according to the capacity of the various chambers.

I am attaching some drawings (Plan No 848), which give a rough idea of the proposals in the form of sketch plans. It must not be thought that these recommendations contain the final and ultimate decision but they can easily be improved upon, according to the amount available to be spent.

For example the flushing arrangements will merely consist of a tank which would be kept filled by the blusti. This tank would supply either a gallon or a gallon and a half cistern of the usual type the water from which can be released by the man in charge of the particular group of latrines when occasion demands. In all I have planned for 30 seats, and I think these would probably suffice.

WATER SUPPLY

The question of water supply to the bazaar area will to a large extent have to remain quiescent until the general water supply scheme for the whole of Abu is dealt with.

DRAINAGE

The question of surface drainage as far as the whole area is concerned is not one that creates much difficulty. The area is naturally self drained and it only remains to deal with the collection of surface water and its disposal by its natural outlet at the North East end of the Trevor Oval by means of subsidiary surface drains which I have arranged for in aligning my proposed roads.

The plan No 824 will make it clear that so far as the main drain is concerned, which at present takes the form of an open and natural nulla running North East and South West through the open land to the North East of the Oval my recommendations include the construction of a new surface drain which starts from the rear of Frampton's Bakery continuing in a very nearly straight line due South West for 450 ft and then turns sharp to the South East for a distance of 150 ft and again at this point turns South West ultimately going very nearly due South discharging in the blusti nulla at a point almost adjoining the land at present used as 'Municipal grass stores'. The advantages of this alignment will be apparent from the plan. I at one time thought of more or less utilizing the alignment of the existing nulla, but I am satisfied that this will be a mistake and the proposed new alignment enables me to provide a convenient open space between the proposed new road C D E and the Post Office road. It will be apparent from the plan that it would be very objectionable to have the backs of the houses on road C D E immediately underneath the Post Office road. The result will now be that an open space will be provided for in front of the houses which could be planted with trees and could with advantage be used as a public garden. I have not actually proposed in my scheme the utilization of the south eastern and north eastern front-

age of the road *C D E* for building plots although this means the surrender of a certain amount of value from adjoining lands Having regard to the altitude of the Post Office road, I think it is a desirable feature A subsidiary water drain is carried from a point adjoining house No 207 almost due south making use of the existing culvert at the northern corner of the Oval

These two main surface water drains will carry less than is normally carried by the present nulla due of course, to the construction of the new roads which will have the usual side drains which in turn will be connected up with the previously mentioned main drain As an appendix to the Report I am attaching details (Plan No 849) of the proposals relating to the construction of these drains in the form of sections and cross sections

The local drainage of the bazaar itself should I think, be dealt with by a central drain This has some disadvantages from the point of view of road user, but nothing like the disadvantages side drains would have The latter would not be practicable due to the erratic boundaries of the bazaar entailing many acute bends and turns For this reason alone the side drains are out of question, apart from the fact that two will be necessary one on each side of the road instead of the one central drain now proposed This point is one of considerable importance as the road itself is already so very narrow

From the plan referred to above showing sections and cross sections of drains it will be seen that generally the central drain will be covered and access would be given at suitable intervals by means of comparatively large manholes There is no question of fall arising, as the bazaar has a natural fall from east to west At present the surface drainage merely finds its own way over the stone pavements of the bazaar and kutchha roads, and thus ultimately gets into the nulla The roads branching off the bazaar can efficiently be drained by the usual side drains

The plan will also indicate that the beforementioned central drain is proposed to be of 12 inches vertical depth of 'V' shape formation It is possible that during the periods of the heaviest rainfall even this may not suffice but the formation of the level of the road itself will naturally carry the surplus through its centre The drain may either be, for preference, of stoneware throughout, if so, it should naturally be rounded at the base, or as a more economic construction by a half circular pipe at the base with cement sides, or failing these two methods, wholly of neat cement

ACQUISITIONS OF PROPERTIES INCIDENTAL TO THE DEVELOPMENT SCHEME

The proposals as foreshadowed in the previous remarks together with an inspection of the plans accompanying will reveal the fact that a certain number of properties will have to be acquired numbering in all 100 35 of these properties are held on pucca patta tenure, 47 on kutchha patta and 18 on Loks tenure I have prepared a statement (Appendix 4) which gives the details of the properties with an estimate

of their capital values and I have shown on plan No 850 as to how these tenures are distributed. The total compensation to be paid in respect of the properties held on pucca patta tenure is Rs 15,000, katcha patta Rs 18,000 and Loks (for structures only assuming that new sites are given to dispossessed owners) Rs 3,000.

LAND AVAILABLE FOR DEVELOPMENT AND DISPOSAL

The net result of the beforementioned acquisitions would be that a considerable area of land will be available for development and disposal. Of this an area of 13 acres is required for roads and 28 acres or 1,00,000 s ft will be available for sale to the public after provision has been made for the following public requirements —

- (a) Playground (b) Latrines (c) Cattle sheds for public and Municipality (d) Gardens, (e) Rehousing of Municipal sweepers, and (f) Municipal vegetable market

It should be remarked that, when making provisions for the Loks with new sites, (admeasuring 10,000 s ft) in every case the area which they have lost has been increased by 50 per cent when giving them new lands. This has been rendered necessary, due to the fact that their existing areas are so small that it would not be wise to allow rebuilding on such diminutive plots. In my calculations I have not made any provision for charging the Loks with additional sums for the extra land they have been given as it is a matter for the Municipality to decide hereafter. I estimate that the surplus land available for sale viz 1,00,000 s ft is to day worth somewhere in the neighbourhood of Rs 85,000 as against the net cost of works and acquisitions of properties Rs 92,700. These figures are set out in a greater detail in the finance statement Appendix No 6. I think I should add that in arriving at my return from the sale of lands I have had practically no data on which to base my valuation, but I have assumed and all over rate of Rs 9 a yard. I have reason to believe that this must be considered to be a reasonable figure having regard to the fact that the sites fronting the Oval are very choice and would probably fetch a very much higher figure.

LAND TENURES IN THE BAZAAR

I have shown on plan No 850 how these tenures are distributed.

(1) *Pucca patta* — I gather that all persons holding under this tenure are the owners of the fee simple possession of the properties concerned.

(2) *Katcha patta* — Persons holding under this tenure I understand hold under perpetual lease paying a rent (ground rent) of Rs 5 per Sirohi Bigha (55 yds by 55 yds) and in the case of houses Rs 2 per house yearly. I have no definite information as to the terms of the lease apart from paying the ground rent and I am therefore not in a position to state whether or no they would be entitled on this position, upon acquisition to receive more than the actual value of the superstructure. Far it may be that the lease provides that the Sirohi Darbar or their successors

in title have the right to acquire these properties without compensation in respect of the land. If this is not so, then naturally they would be entitled to the difference between the capitalized ground rent and the value of the land in so far as the land is concerned and the correct way under these circumstances to value their interest would be to capitalize the net annual value of land and buildings and to deduct from this the capitalized value of the ground rent. It should be borne in mind in this connection that the annual value of land and buildings might especially when the buildings do not adequately develop the site merely, represent the annual value of the land alone. The ground rent might suitably be capitalized having a reference to the current rate of money at 6 per cent. or 16 $\frac{2}{3}$ X. P.

(3) *Lok's tenure*.—This is a tenure which is not easily describable by any concise legal definition but which has eventuated as a result of a gift to the Loks of certain lands to which they have an inalienable right of occupation free of any ground or other rent. I understand the position is that in years gone by, the Lokes were agriculturists cultivating lands in the vicinity, some of which now form the site of the Trevor Oval. In course of time the agricultural parts of their holdings were required for various purposes and they were left with the lands actually held by them for residential purposes. I am given to understand that they have what may be said to be a "Squatter's" title and so far as Government of India are concerned, Government have no right of ejection except by any powers which they possess for compulsory acquisition and compensation. If the ordinary Land and Revenue and Civil laws governing lands outside the Native States apply then the Lokes from the acquisition of their properties would be entitled to practically the full value of the land and buildings. It has been suggested to me in certain quarters that they would only be entitled to the value of the superstructure, but if this is so then Government possess certain rights of which I have no knowledge. I have discussed this matter somewhat fully because my proposals provide for the acquisition of some of these properties.

It must be borne in mind however, on the assumption that full compensation will have to be paid, that my scheme provides for sites being given to Lokes who are dispossessed of their existing holdings and it is conceivable and indeed highly probable that such persons would prefer to have a new site given them in the present area, and compensation for the existing structure, rather than full compensation for land and buildings and my proposals are based on this assumption.

WORKS TO BE EXECUTED UNDER THE SCHEME OTHER THAN ROADS, DRAINS AND LATRINES, PREVIOUSLY MENTIONED.

REHOUSING OF MUNICIPAL SWEEPERS.

This is a matter which should receive early attention, as at present housing conditions are, to put it mildly, not such as to be recommended.

I have selected a site which is numbered on the plan 29 and 30. This has an area of 8,750 s ft, and provision could be made on it for ten tenements. We cannot have an elaborate design, but I should think, with reasonable care, that such tenements could be erected at the rate of Rs 600 per tenement.

MUNICIPAL CATTLE SHED

The present position does not fall in with the scheme arrangement and I have selected a new site as shown on the plan "Plot No 81". It has an area of 4,446 s ft and there will be sufficient room to provide for 20 cattle instead of the existing accommodation for only 14. There is very little value on the existing site and it is an eye sore to all users of the Post Office Road.

GARDENS AND TREE PLANTING

An estimate has been made for an expenditure of Rs 500 on the planting of trees along the road side and in the open space fronting surface water drainage channel. Nothing more is really done in the way of preparation of a public garden, that is a matter which arises subject to the funds being available.

VEGETABLE MARKET

At present the vegetable and fruit sellers expose their goods for sale in odd places on the pavement of the main Bazaar which is a highly unsatisfactory arrangement. Plot No 20 on plan admeasuring 6,200 s ft would be found to be a convenient site for a small vegetable market.

MEAT MARKET

Proposals have been for a long time on foot to erect a more spacious Meat Market in a more suitable locality. It appears from the office files that the present Market is privately owned and that the ownership rests in a number of butchers who originally combined together. It is not necessary in this Report to discuss the individual ownerships. I imagine that the original intention of the Municipality to construct a new Meat Market was largely based on the fact that the existing Market is situated in an insanitary environment rather than that the Market itself was insanitary or it may be that since the inception of the idea of the Market QUÀ Market has been improved, for a very careful inspection does not permit of a ready condemnation of the Market on the ground that it is itself insanitary. On two or three visits at different hours of the day I have been particularly struck with the marked cleanliness of all the stores and the fact that most of the meat which is exposed for sale was kept in fly proof cases. I am of opinion especially as land is not likely to be readily available for the construction of an

entirely new Meat Market elsewhere the best course to pursue would be to reorder as far as possible the neighbourhood of the Market more sanitary and in this way to free it from the likelihood of contamination by flies. It must not be thought that I am, for one moment, suggesting that the existing position of the Market is desirable for it is most certainly not but the facts have to be faced as they exist and I think that by drastic treatment of the area in the proximity a great deal could be done to remove the prevailing objection. I need hardly say that it is desirable that the semi basement of the present Market should not be allowed to be used for residential purposes. It is at present occupied by butcher families and some tenants including a few shoe makers who have their stalls immediately adterminous with the exterior walls of the Market. On a question of policy it is worth while to consider the effect that the erection of a new Meat Market would have on the existing owners of the present Market. It would be of no use building a new Meat Market if no butchers would be found who would occupy it. This will practically mean that the use of the existing Market would have to be prohibited. In equity the present owners should be fully compensated for the loss of their Market if such regulation could be enforced. I imagine it could only be enforced on sanitary grounds and I think it would be extremely difficult to convince an impartial arbitrator that the present market is in an insanitary condition. However this may be, there is no doubt that if any expense has to be incurred on improving the environments of the market and consequently the market that the owners of the present building might readily be expected to contribute towards the cost of such improvements. They might either do this by removing the tenants from the semi basement of the market and improving it in such a way that no objection on sanitary grounds would be taken to and by paying a certain lump sum to the Municipality towards the cost of acquiring adjoining properties or in such a way as might be mutually agreed upon. The owners of the Market must be fully aware of the Municipal proposals and would naturally be prepared to pay a reasonable contribution towards any improvement scheme which would allow them to retain the benefits of the present Market.

BRIEF NOTES ON ABU WATER SUPPLY

KUINA NALA SCHEME

Finances

Some criticism is necessary with regard to the calculation of annual instalments as appearing in appendix V, on page 23 of Vol II, printed in 1921. A slight error has crept into this calculation and the annual equated cost of repayment of capital together with the interest on the outstanding amount from year to year would be Rs 8,004 and not Rs 7,810 assuming the rate of interest taken is 4 per cent. The calculation is a simple one and a reference to page 82 Table 5 of the

book of Valuation Tables (copy of which was supplied to the Hon'ble the Agent to the Governor General in Rajputana under cover of my report regarding the valuation of Alwar site, No Abu 1, dated 11th June 1921) on the assumption that the loan is to be repaid within a period of 20 years gives a year a purchase of 18.50. If total loan quoted in the above mentioned appendix is divided by this year's purchase, the annual payment is at once revealed.

This particular appendix was prepared some years ago, and the interest of 4 per cent is now of course quite out of date and should be increased to 6 per cent. However, I notice that in appendix 3 revised on page 35 of Vol II, the interest on capital has been actually reduced to 3½ per cent notwithstanding the fact that it accompanied a report dated 17th June 1920. It is hardly necessary to say that a loan could certainly not be raised as at that date at anything less than 6 per cent.

I notice in this latter appendix that no provision has been made for repayment of capital. This is a serious omission and would make a difference on a 3½ per cent basis of Rs 7,700 approximately, the annual charge being very nearly Rs 15.300 against the Rs 7,700 stated. The result would be that the total which is Rs 10,952 becomes Rs 18,600, and the result indicates the cost to the consumer at Rs 12.7½ per 1,000 gallons, against practically 11 annas calculated in the appendix, assuming we can borrow at 3½ per cent. But if we take 6 per cent as the market price of money in 1920, the total annual charge for interest and repayment of capital spread over 20 years is Rs 19,000 in round figures or an increase of Rs 11,400. Adding this Rs 11,400 to the Rs 10,950 the total cost is Rs 22,350 or well over 100 per cent more than the estimate. It is thus apparent that the current estimated cost to the consumer is roughly Rs 1.80.

Coming now to the final revised estimate appendix 3 (revised) for a 50 feet dam, printed at page 40, a similar series of miscalculations appear. Firstly as regards the omission of any provision for repayment of capital and secondly as regards the gross underestimate as to the rate at which capital could be borrowed. Adopting 6 per cent for interest and repayment, the annual cost to the consumer would be Rs 22,240 as against Rs 8,929, an increase of Rs 13,311. If this is added to the total cost of Rs 12,272 the latter figure is increased by over 100 per cent and the total cost to the consumer will thus be nearly Rs 1.10 for 1,000 gallons.

It should be observed that the estimated capital cost of Rs 2,55,104 omits the cost of establishment, tools and plant of Rs 4,848, this latter sum should of course have been included. It has been included, I notice, under general abstract of expenses, Statement II on page 40.

A further omission is the capital and annual costs incidental to provision and maintenance of the mains required to serve areas at the

moment undeveloped. It will only be by the development of these areas that the maximum consumption will be attained and deferred costs etc., should have been included.

In my opinion the estimated consumption of 21 million gallons per annum is a reasonable estimate for future requirements but I do not anticipate on the evidence before me that this maximum will be reached for another 10 years and in estimating the cost to the consumer, I think it would be wise to assume 20 million gallons for certainly a mean period of 5 years. This would mean an increased cost per 1,000 gallons during the next 10 years. The only way to diminish this cost would be to construct the dam in the first instance to a height of 40 feet making full provision in the construction for the simple raising of an extra 10 feet when occasion required it. I fully appreciate the reasons given by the Superintendent Engineer in his note dated 17th June 1920 for the immediate construction of the dam to a height of 50 feet, but I see no reason why the service min of 5 inches should not at once be provided. It is true that it is estimated the extra 10 feet of dam will cost another Rs 18,000. But I think there can be no doubt that in another 10 years time, when the prices of money and material are lower, the net annual cost will show a saving over the present cost of immediate construction.

While discussing this question of finance, I think I need point out that no provision has been made for depreciation, on the other hand I am of opinion on a matter of policy, as apart from finance, that it is desirable in the provision of the renewals fund, the charge should be graded. The question as to how we shall provide for payments for things needed now which will hereafter be needed in a greater measure, can only find an answer to some degree in a differentiation of the amortization charges in the way I have indicated.

GRADING.

I am afraid I do not agree entirely with Mr Keeling's note dated 7th March 1919. A run-off of 20 or 25 per cent would be reasonable in the sandy plains around Ahmedabad but in a rock catchment area such as we have in compensation I have not the slightest doubt that 50 to 70 per cent would be a reasonable figure to work on, with a preference to the former figure.

Leakage in all artificial reservoirs of the type in view must always be a doubtful factor, and time after time I have seen money wasted on the erection of expensive dams as the result of not making sufficient borings all over the site in order to test the porosity of the sub soil. Superficial observation is not sufficient, but I must say that in the case of the site under reference one's experience leads to the belief from the formation of the rock that the leakage would be very slight.

Again I am not in agreement with Mr. Iseling when he questions the solidarity of the abutments. No more solid abutments could be wished for than are to be found on this site and I am of opinion that an arched dam would be eminently suitable and certainly more economical in the existing circumstances.

METHOD OF RECOVERING ANNUAL OUTLAY

The calculations have been very properly and necessarily based on the cost to the consumer of 10 rupees per 1,000 gallons but the method of actually collecting this sum appears to have been based on assessment on annual rental value. Inasmuch as the calculations have been made on a certain consumption per head, it is questionable as to whether the principle of assessing on rental value is one which should be adopted or not. From the principle however, it does not necessarily follow that the population would be distributed on the basis of annual value. This latter basis of assessment had its origin in the belief that ability to pay should form the criterion of assessment. It is not necessary in a report of this description to enter into a discussion as to the merits or demerits of the principle involved and I am more concerned to suggest a method whereby the annual return expected could be secured. The obvious method of ensuring that the consumer adequately paid for the benefits would be to instal water meters in every house and provide for a minimum monthly payment but this would be practically impossible in the bazaar area where I imagine there will be a certain source of supply in the form of stand pipes for many years to come.

It might be possible however to combine the two methods, viz to instal meters in those properties where it was felt that the user was in excess of the average supply calculated and to assess in the case of other properties on the basis of annual value—even in these latter cases it might be necessary to fix a minimum charge.

I apprehend that legislation would be necessary to enforce an assessment on all inhabited properties. It is quite conceivable that in not a few cases owners of properties would be content with the existing wells and would not be prepared to go to the additional expense of having a water supply laid on. No provision has been made in the estimates for such cases and it has been assumed that every resident on the hill will avail himself of the water-supply.

In conclusion I am strongly of opinion that the Kudra Nala Scheme has been soundly conceived and is able to solve the problem of water-supply to Mount Abu. From my previous remarks it would be gathered that in my opinion the cost to the consumer for the first 10 years of the scheme would be something more than Rs 18.0 per 1,000 gallons. But there is nothing to be alarmed at in this by comparison with water-supply systems in other places when it is remembered that the population is small and largely crowded into a few months in each year.

SUMMARY.

At the present moment the demand for building sites is the reverse of encouraging, but I think to some extent the Municipality is responsible for this state of affairs. They have a magnificent hill station with a great deal to commend it, but they have not sufficiently advertised their wares. Every important Railway station north of Bombay and south of Delhi should have an attractive poster on it setting forth the advantages of Mount Abu as a holiday and health resort, and advantage should be taken of the hundred and one different methods of advertising.

If the Electric Lighting Scheme, which is proposed at an estimated cost of two and a half lakhs of rupees, and improved water-supply are provided the hill should become extremely popular.

If I may be permitted to remark on general finances, it is to the effect that in my opinion the Government of India should merely consider the capital received in the form of premium on the leases of building sites as a capitalized ground rent, and should certainly relinquish any claim they have to the premium received upon the execution of the leases. If the Government of India desire to encourage the sanitary development of Abu, they should for some years to come cease to consider it as a source of revenue and should be content merely to recover the amount that they have actually spent in payment to the Sidihi Durbar. It will only be by a sympathetic consideration of a suggestion such as this, that the Municipality will have funds available to meet the interest and sinking fund charges on capital necessary to carry out any of the improvements foreshadowed in this report.

A. E. MIRAMS,

Consulting Surveyor to the Government of Bombay.

POONA,

1st March 1923

APPENDICES.

APPENDIX No. 1.

VALUATION OF BUILDING SITE.

Est No.	Rate per acre as existing.	Rate per acre as developed.	REMARKS.
1	500	...	No access road provided under the Scheme.
2	550	1,100	
3	610	1,220	
4	550	1,100	
5	500	1,000	
6	570	1,140	
7	550	1,100	
8	570	1,140	
9	500	1,000	
10	540	1,080	
11	500	1,000	
12	500	1,000	
13	700	1,400	
14	570	1,140	
15	500	1,000	
16	500	1,000	
17	1,200	...	No access road provided under the Scheme.
18	610	1,220	Frontage on existing Road.
19	670	1,340	
20	600	1,200	
21	670	1,340	
22	670	1,340	
23	550	1,100	
24	550	1,100	
25	550	1,100	
26	450	...	No access road provided under the Scheme.
27	670	1,340	
28	650	1,300	
29	550	1,100	
30	620	1,240	
31	550	1,100	
32	620	1,240	
33	610	1,220	
34	550	1,100	
35	500	1,000	
36	950	...	Frontage on Abu Road.
37	700	1,400	
38	820	1,640	
39	450	...	No access road provided under the Scheme.
40	1,000	...	Frontage on Abu Road.
41	600	1,200	
42	670	1,340	
43	500	1,000	
44	620	1,240	
45	500	1,000	

APPENDIX No 1.—VALUATION OF BUILDING SITES—*contd.*

Site No.	Rate per acre as existing	Rate per acre as developed	REMARKS
	Rs.	Rs.	
46	875		Frontage on Abu Road.
47	1,025		Ditto.
48	700		Ditto.
49	500	700	
50	800	800	Frontage on Abu Road.
51	750	750	Ditto.
52	600	725	
53	725	725	Frontage on Abu High School Road
54	825	725	
55	600	700	
56	500	725	
57	600		Frontage on Abu High School Road.
58	700	740	
59	600		Frontage on Abu High School Road.
60	1,000		Ditto.
61	600	700	
62	625	725	
63	650	800	
64	1,000		Frontage on Abu High School Road
65	775		No access road provided under the Scheme.
66		"	No access road provided under the Scheme.
67	450		
68	875		Frontage on existing Road
69		1,100	Frontage on Amadra Road.
70	1,000		Ditto.
71	625		Ditto.
72	600		Ditto.
73	600		Ditto.
74	600		Ditto.
75	600		Ditto.
76	600		Ditto.
77	800		Frontage on existing Road.
78	600		No access road provided under the Scheme
79	1,250	1,275	
80	1,200	1,250	
81	600	700	
82	600	800	"

Pooys,

A E MIRAMS,

1st March 1923 }

Consulting Surveyor to the
Government of Bombay

APPENDIX No. 2.

List of Building Sites available for disposal with a brief description of boundaries, etc, locality, distance from Post Office and value.

REPORT ON DEVELOPMENT OF MOLAT ABD.

APPENDIX No 2

LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL.

* Altitude of Rajpaleka Club 3,920

No. of site	Area in acres	Locality	Distance by road from Post Office	Appropriate altitude of the position for building	Brief description of boundaries	Neto Per acre	Remarks
1	0	4 Mile Chakkar Road	1.86	3,960	Situated to the north-east corner of Alwar west by 4 Mile Chakkar Road, east and part west by the northern boundary of Alwar site.	500	Site determinable only on existing 4 Mile Chakkar Road. No prices rendered. Provided under the Scheme.
2	3	Bikaner House	1.42	3,880	Situated to the east of Bikaner House, bounded on north and east by boundary of leased area (Pillar No. 3 on the east corner of 3,920 then due south-west up to pillar No. 9.	1,100	
3	3	Bikaner House	1.42	3,850	South of site No. 2. North by Bikaner House Road up to the junction of footpath going due south-east, east from it a junction referred to line south up to pillar No. 11 of Customs limit and west by the footpath running due south west, limit by the Customs limit.	1,000	

4	29	Bitaner House	142	3,630	South east of site No. 2 North by feet path from Bitaner Road running due north east	1045
5	7.12	Gera Chappar	1	3,550	On Pilgrim Road and to the north east of Gera Chappar North by feet of cliff, but the floral growth is high by feet path from Pilgrim Road to floral growth is well by a curved line 30' from Pilgrim road at south increasing to 100' in the middle (due east of the high east point) and finally meeting the foot of the cliff at the north west corner	900
6	1.53	4.116 Chikkar Road	158	3,900	North from a point 160' south of No. 12 (steep area) and 30' east of 4.116 Chikkar to the east boundary of Alwar side (the second break in line it trends north from the south east corner) West by Alwar side first by 5' mile Chikkar or (20' from the steep road edge) South slope, the centre of the dip running east-west about 30' south of the first break in Alwar boundary from the south east corner	750
7	3.12	Ditto	143	3,800	North by feet of path referred to in No. 6 first by Alwar boundary West by 5' mile Chikkar road (20' from existing road edge) South along the feet path running due south east to the southern boundary of Alwar side.	900

REPORT ON DEVELOPMENT OF MOUNT ABU.

APPENDIX No 2.—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*contd*

No. of sites.	Area in acres.	Locality	Distance by road from Post Office	Approved miles outside of the posession for building.	Brief description of boundaries	Rate per acre	Remarks
8	3 6	4 Miles Chakkar Road	1.36	3.840	North by the foot-path referred to in No. 7. West partly by Alwar site and partly by middle of Alwar site. South east corner of Alwar about mile Chakkar road (20' from road edge) south by the small nullah.	Rs. 050	
9	3 5	Ditto	1.25	3.630	North by the nullah referred to in No. 8. South and east by 1 mile Chakkar (from road edge) West by nullah (20' due south west from Alwar site) running the foot of the hill along the boundary of agricultural land.	750	
10	5 75	Ditto	1.25	3.880	North partly along the female Chakkar (20' on leased boundary 30' north of Point No. 13 East along leased boundary 210' north and 200' south respectively of pillar No. 13 South by a line 20' west and parallel to foot-path to Sajgan West by nullah.	775	

11	52	Ditto	1,034	3,860	North and west by foot path to Salgano Northeast along leased boundary from the crossing of foot-path, to 300' southeast South by nulls, running due southwest to about 700' southwest of leased boundary, then by a curve in a northeast direction up to foot path to Salgano.	770
13	6	Ditto	1,055	3,880	North by nulls East by foot of the high ridge West partly by nulls and partly by foot path from 4 miles Chakkars running due southwest (about 20' east of it) South by foot-path.	750
13	325	Ditto	1	3,880	To the north of Mr. Cawaje's bungalow between the bungalow ground to the north and 4 miles Chakkars to the south. (20' from road edge) southeast corner of site on 4 miles Chakkars 300' east of the east corner of the triangle of roads (pilgrims and 4 miles Chakkars), to the southeast of Gera Chappan.	860
14	4	Ditto	1	3,820	North by a line 20' south of the 4 Miles Chakkars and parallel to it from in front of the southeast corner of the triangle of roads to 350' east, then by a curve along the south path to the West of Mr. Cawaje's bungalow 300' southwest of its southeast corner then from this point in a line due northwest for a distance of 350' and finally due north to the southeast corner of the triangle of roads referred to.	1,000
15	3	Ditto	1	3,815	North by the 350 line referred to in No. 14, east by foot-path referred to. South by a line 430 southwest and parallel to the northern boundary West along the boundary of the agricultural land.	950

APPENDIX No 2.—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*contd.*

No. of site	Area in acres	Locality	Distance from Post Office	Approximate site of the position for buildings	Brief description of boundary	Rate per acre	REMARKS.
16	82.	4 Miles Chakkar Road	1.5	3,470	Sites on the hill to the east of Mr. Cawnpore's bungalow. On east by the agricultural lands in the bed of 'Nadi,' on north by end of rocky spur. On east by a curved line from this rock and by a line 10' west and parallel to the walls on east running due south north, on south by cliffs and nullas.	300	An isolated site far removed from existing Road and separated by the Nadi. Road access not provided under the Scheme.
17	328	Dak Bungalow	0.36	3,360	In front of Dak Bungalow. North by nullas. East by the top of cliff. South partly by cliff, saved partly by a line 20' from and parallel to the northern site of the adjoining house and then by a right-angle bend to the west up to the nullas. Distances from north west side of the building up On west by nullas	1,200	
18	36	Kumharwara	0.64	3,800	North by the foot of cliff. East partly by a line running due northward and south east from the east end of the cliff to the nullas on southeast. Then by the nullas as far as the culvert on the 4 Miles Chakkar, southwest of Kumharwara, then by the foot of the hill (20' from west side of 'Mali Chakkar) south partly along 'Mali Chakkar' (20' from road edge) and partly by nullas. West by nullas.	600	

19	2	R. G. Chapel	0.43			500
20	47	Golf Links	0.60			850
21	4	Kumbharwara	0.81	3,840	Site to the east of Kumbharwara. North by Pilgrim Road (30' from 'south side') East by the Torna side of the high rocky mound in a southwest direction up to the nulli, (containing the foot-path) at north. South partly by the nulli up to 150' to the North west and then continuing up to the foot-path coming up hill from Kumbharwara. On west by a nulli from this end Jno north up to the sharp bend on the 4 Mile Chahkar diversion to the northeast of Kumbharwara.	650
22	376	Torna	1.0	3,350	North by the southern boundary of 21 (re- ferred to). East by a nulli starting from a point 300' northwest on the footpath from Pilgrim Road and continuing horizontally round the nulli up to the rocks on the north- west corner above Kumbharwara.	750
23	655	Kala Chappra	1.28	3,870	Site northeast of Kala Chappra. North and west by top of cliff. East by the agricul- tural land at foot of hill and south by nulli running due southwest and northeast.	725

APPENDIX No. 2.—List of Building-Sites Available for Disposal—*contd*

No. of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	Remarks
24	3.25	Kala Chappra	Miles.	1.25	3,800 Coterminous with No. 23 North by nulls. East by the agricultural land. South by a line 20' from and parallel to footpath coming from Villanth Mahadev Temple. West by nulls flowing south from Kala Chappra.	Rs. 900	
25	6	Pilgrim Road		1.31	3,780 North, west and south by the agricultural land. East by Pilgrim road (40' west of centre of proposed alignment). Northeast corner 80' from the southeast corner of Villanth Mahadev Temple, and southeast corner 40' west and 80' north of the culvert (1st from Abu Road)	Rs. 875	
26	6	Ditto		1.42	3,850 North by nulls. East by nulls. South by nulls. West by agricultural land at foot of Hill	Rs. 450	Site separated from Pilgrim Road by nulls. No access provided under the scheme.
27	6.16	Ditto		1.50	3,850 Coterminous with No. 26 North and west by nulls. South by nulls running due East-West. East by a line parallel to the west boundary at a distance of 450'	Rs. 450	Same remark applies to this site.

28	600	Ditto	1:30	With the Incumbent and night soil Depot removed	Ditto
29	55	Tahsil	1	3,950	Catermous with No. 27. North by nulls and west by nulls. South by a curved line from the southwest corner 30° northeast of agricultural land and then by a line parallel to the north boundary at a distance of 400' East by a north-south line 240' east of the highest point.
30	785	Ditto	1	3,900	Site to the northeast of Tahsil. North and east by top of cliff. South, clear the centre of the dip between the hill and the hill to the south. West by a circular curve (200' radius having the nulls flowing down southwest in the middle of site as diameter
31	7	Pilgrim Road	136	3,600	Site coterminal with the southern boundary of No. 29. East by nulls flowing down southwest. South, horizontally along the contour of hill 350' south of its highest point on site, as far as the nulls on the east. East by a curved line 400' from the highest point up to the southeast corner of site No. 29.
32	115	Aba Road Mile No 1/1	16	3,700	Site to the north of Dhundar village (west) north by nulls. East by cliffs adjacent to Pilgrim Road. West by nulls and south by a line very nearly parallel to north boundary at a distance of 600' starting from the south end of the cliffs referred to and following in a circular curve to the upper end of the nulls on west.
				3,920	Site to the north of Aba Road Mile No. 1/1 North by a line due east-west 300' north of the highest point (centre of site). East by the two nulls flowing northeast and south respectively. South by cliffs 600' ft. south of the highest point. West by cliffs overhanging the nulls.

APPENDIX No 2.—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—contd

No. of site	Area in acres	Locality	Distance by road from Post Office	Approximate elevation of the position for building	Brief description of blemishess	Rate per acre	Remarks
33	6	Abu Road Mile No. 1/2	Miles 1.4	3,860	West by site No. 32 and by walls right down to a point 30' north of the well to the south, then in a southeast direction for 200' for the southern boundary. On east from this point to the north along bed of walls to the distance of 650'. On north from this end in a northward direction to the walls on west running due southward.	Rs. 700	
34	4.1	Abu Road Mile No. 0/7	Miles 1.4	3,860	North by cliff (bottom) South by cliff (top). East partly by walls (bottom), then going in a circular curve 200' from the highest point and ending in the cliff at North.	750	
35	37	Ditto	Miles 1.4	3,770	North by walls, West by walls and curve referred to in No. 33. South by a curved line from the well done southeast past the foot of the cliff to the walls on west.	1,000	
36	225	Abu Road Mile No. 0/3	1	3,760	North by Abu Road (30' from south edge) West by walls, South by foot of cliff, East by Gomukh Road (30' from road edge).	950	
37	32	Abu Road Mile No. 1/2	1.29	3,730	On South by a line 330' long having its east end 100' and west 170' from Abu Road towards North. Southward curve in front of Miles No. 2/1, after 100' East by a line	850	

3-33	Ditto	1275	Pilgrim road	1-54	3,350	Site to the north east of Dhundai village and to the east of Nadi. East partly by left bank of Nadi and partly by cliffs to northwest. North by nulla continuing in a southeast direction to a point 250' due east of the highest point. East by a line 600' long due south from this end. On south by the edge of the three cliffs overlooking the Nulli.	450	No access provided to the site under the scheme, as it involves the construction of a costly bridge over the Nulli.
3-38	890	1275	Pilgrim road	1-6	3,870	East by top of cliffs adjoining the existing Pilgrim Road junction. Southeast corner of 50'. North of mile No. 1/3 plus 200' of Abu Road. Southeast corner at 100' north of mile No. 1- $\frac{1}{4}$ plus 200'. East from this later corner to the crossing of the two small nullas at north. Then in a north-west direction in continuation of the west side nulla up to 600' from junction; then by a curve horizontally (north boundary) to 500' due west and finally by a curve to the cliffs at south west corner.	1,000	
40	10		Abu Road Mile No. 1/4					

APPENDIX No. 2.—List of Building sites available for Disposal—cont'd

No. of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	Remarks
41	0.4	Abu Road Mile No 1/4	1.6	3,830	West by site No. 40 (east boundary) North by a line from the north end of this boundary to a very nearly circular curve along the center of ground (for the east and south sides) up to the junction of nullahs to the west referred to in No. 40	875	Fr
42	2.0	Abu	1.6	3,760	North by No. 41. East by nullah. South partly by nullah and partly by the track breaking off the Abu Road. West from the junction of this track towards north west up to the southwest corner of site No. 40	875	
43	6.15	Abu	1.62	3,800	North by the old track (10' from edge) Northwest corner on the first nullah crossing on this track and northeast corner 400' eastward on the track edge. West by the nullah referred to East from the north east corner referred to a long the contour to the cliff to the southeast corner then following the contour horizontally (for south east boundary) to the nullah on the west	750	

44	45	Ditto	1.67	3,770	North by the track (10' from edge) East by nulla referred to in 43 South by top of cliff and along the contour horizontally for the remaining portion West by the dip on the ridge	576
45	44	Ditto	1.6	3,770	Crossroads on junction of track with Abu Road. North by existing track (10' from edge) West and south by Kudra nulla. East by the centre of the dip referred to in 44.	960
45	276	Abu Road Mile No. 1/6	1.6	3,740	North by Kudra nulla. East by Abu Road (30' from edge) up to the nulla and then by nulla 200' due south of road; South by a line from this point in a southwest direction to a distance of 200' then by a circular curve to the Kudra nulla on the west.	875
47	35	Abu Road Mile No. 1/4	1.44	3,770	North by Abu Road (30' from road edge) East by the rocks to the south of nulla crossing situated to the west of tunnel No. 4 in mile No. 1. South by a line parallel to Abu Road, and at a distance of 260' from road edge. West by Abu High School Road (30' from road edge)	1,026
49	14	Ditto	1.6	3,780	North by Abu Road (30' from road edge) West by No. 47. Northeast corner 180' from nulla No. 1/4. East from this corner by a curve to rocks towards southwest up to the southeast corner of 47.	700
49	32	Gomukh Road	1.2	3,840	Sale on the Hill to the southwest of Idgah north and east by Gomukh Road (30' from edge) West by a nulla south by nulla following due east and crossing Gomukh Road in the sharp bend to the south of basal ground.	760

REPORT ON DEVELOPMENT OF MOUNT ABU

APPENDIX No. 2.—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*Contd.*

No. of sites.	Area in acres.	Locality	Distance by road from Post Office	Approximate altitude of site position for building	Brief description of boundaries	Rate per acre.	Remarks.
60	8.6	Abu Road Mile No 1.1.	1.27	3,880	North partly by agricultural land by the road itself (30 from road edge). Northwards the south along the right bank of nullah running through burial ground. West by cliffs overlooking the barrel ground to a point 150' south of the sootherriver on Abu Road. On east by a line due south from the northeast corner to the eastward nullahs on the south.	Rs. 500	
61	3.4	Ditto	1.30	3,880	Site coextensive with eastern boundary of site No 60. On north and east by a line 30' from the parallel to Abu Road, as far as the eastward nullah crossing Abu Road. School Road 100' due south of Abu Road Junction. On south by nullahs.	Rs. 700	
62	6.9	Chomank Road	1.40	3,900	Site coextensive with the southern boundary of site No. 60. West by cl. 120' due west of east corner of site No. 60 due south up to the cliff. A distance of 200' south by nullahs.	Rs. 750	

63	613	Aba High Road	1.47	3,360	Site continuous with the southern boundary of No. 61 and south by nulls forming the southern boundary of No. 61 East by Aba High School Road (30 from edge) and along the top of cliff towards southeast, South, by a line 160' long due eastward along the centre of dip at south end of cliff. West by nulls for 200' then by a line due north 450' up to the nulls at North	725
64	3 5	Gonankh Road	1.37	3,900	Site to the west of Gonankh Road on the high plateau to the south of the barren grounds north and west of nulls, South and east by Gonankh Road (30' from existing road edge)	725
65	3 3	Datto	1.43	3,880	Site to the east of Gonankh Road and to the southeast of 64 North by a line 160' long due eastward situated at low from the highest point East by nulls, South by tops of cliffs. West by tops of cliffs overhanging the nulls in that direction running due south.	700
66	275	Datto	1.46	3,870	Site to the east of Gonankh Road and to the west of 65 North and west by Gonankh Road, (30' from road edge), east by nulls and south by nulls	725
67	173	Aba High School Road	1.60	3,760	Site to the east of Aba High School Road Northwest corner at 400' south of junction and southwest at 500' North and east by boundary of agricultural land. West by Aba High School Road (30 from edge) and south partly along the agricultural boundary to the southwest corner of site referred to	900

APPENDIX NO. 2.—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—CONT'D

No. of site	Area in acres	Locality	Distance by road from Post Office	Appropriable waste outside of the position for building	Brief description of boundaries	Rate per acre	Remarks
63	2.9	Abu High School Road	1.66	3,880	Sit to the west of Abu High School Road Northeast corner 750' south of junction and 50' west of road edge. North by a line 160' from this corner due west. East by Abu High School Road (30' from edge) up to the footpath at south and then parallel to the footpath at a distance of 30' for 200' length, then for south by a line from this point due northwest for 200' West by nulla.	Rs. 760	
69	4.1	Ditto	1.65	3,770	North by nulla and agricultural land. East by Kader's nulla. South by Abu High School Road (30' from east edge) West by agricultural land.	Rs. 9.0	
70	1	Ditto	1.6	3,770	Sit on the junction of the first footpath breaking off the Abu High School Road and going southwest of the hills. North by a semi-circular curve 160' diam., the northernmost point being 120' south of junction East by Abu High School Road (20' from west edge) West by nulla.	Rs. 930	
51	6.2	Ditto	1.83	3,880	Sit traversed by the footpath referred to in 60. Northeast corner 60' southwest of the junction of the footpath with Abu High School Road and 60' south of the path at this point. North partly by nulla, and	Rs. 700	6

63	3559	Ditto	1.68	Site on the hill to the southwest of Kader nulla bridge on Aba High School Road north by nulla. East by Kader nulla south by Kader nulla and west partly by Kader nulla and partly by footpath running up-hill due northeast.	3,780	Site on the hill to the south of Kader nulla bridge on Aba High School Road north by nulla. East by Kader nulla south by Kader nulla and west partly by Kader nulla and partly by footpath running up-hill due northeast.	2,910
63	433	Ditto	1.80	Site on the hill due north of Aba High School and due east of the Kader nulla crossing. North and west by Kader nulla East by nulla up to 400 due southeast, then by a circular curve ending in front of the Aba High School approach road. South by Aba High School Road (30° from edge).	2,935	Site on the hill due north of Aba High School and due east of the Kader nulla crossing. North and west by Kader nulla East by nulla up to 400 due southeast, then by a circular curve ending in front of the Aba High School approach road. South by Aba High School Road (30° from edge).	1.70
64	636	Ditto	2	Site situated to the south west of the junction of the Kader nulla and nulla, running along the west boundary of Aba High School grounds. On east by small nulla. North east corner on the crossing of the nulla and east side footpath going on the hill, then continuing northwest up to Kader nulla for the north boundary. West by Kader nulla 500' south of the northeast corner. On south by a line parallel to the north boundary at a distance of 500' the southwest corner falling on the west side footpath.	3,860	Site situated to the south west of the junction of the Kader nulla and nulla, running along the west boundary of Aba High School grounds. On east by small nulla. North east corner on the crossing of the nulla and east side footpath going on the hill, then continuing northwest up to Kader nulla for the north boundary. West by Kader nulla 500' south of the northeast corner. On south by a line parallel to the north boundary at a distance of 500' the southwest corner falling on the west side footpath.	3
65	4	Ditto					

No permanent access provided under the scheme as it involves the construction of a costly bridge over the Kader nulla.

APPENDIX No 2.—List of Building sites available for disposal.—cont'd

No. of site	Area in acres	Locality	Distance by road from Post Office	Agency, State, altitude of the position for trailblazing	Brief description of boundaries	Range for section	Remarks	
65	3.4	Aba High School	2.1	Miles	3,800	Site determined with No. 65 on its southwest boundary on west by half miles, 400' southwest of the west corner of No. 65. Then due south 300' as far as the cliff to the south. On east by site No. 65. On south from the southeast corner of No. 65 in a southwest direction 1/2 far 40' the cliff referred to.	375	Same remark as for No. 65.
67	4.1	Ditto	2	Miles	3,800	Site determined with eastern boundary of No. 65. On north by a line due west between the mulls and 200' south of junction of Kefira mulla and the mulla, east of Aba High School grounds. On south by mulla.	375	Ditto.
68	3.45	Aba High School	2.2	Miles	3,233	Site on the hill south of Yirg School bounded on north east and west by a half mile, 200' radius the northernmost point being 100' south of the southern point of Aba High School, the east end of curve slightly reversed to the south up to the mulla, running westward and curve up old road on east. On south by a line 200' due west from this corner Southwest sides of road from this end, of half circular curve horizontally around the small pointed ridge up to the north, running west by the north side of the hill School compound.	450	△ Far away site. No place names provided under the scheme.

69	2	Ditto			460	Same remarks as for Nos. 68, 69
70	4 10	Craig Road	0.68	3,905	Site co-extensive with No. 68. On north by site No. 68. West by horizontal line along the contours of hill from the south west corner of No. 68, to a distance of 300'. Then in a southeast direction in a straight line 300' long. On east from the end of this line due north to the southeast corner of site No. 68.	875
71	4 30	Lake House Road	0.63	3,880	Site on the Lake House Road, and to the north of the P. W. D. Establishment quarters. North by leased area limit 130' due north of Pillar No. 68 and up to within 60' of Pillar No. 63 due east, east and south by Lake House Road (20' from edge) as far as the British Museum (building) West from this point due north up to Craig road, then due northeast up to the 130' point on the leased boundary referred to	1,200
72	8 6	Nakki Lake	0.63	3,000	Site to the northwest of Stanley Lodge South by Lake House Road (20' from edge) Southeast corner 630' due northeast of the junction of the road with Anand Road East by a wall. West by wall. North by a line very nearly parallel to the southern boundary at a distance of 300 feet.	625

APPENDIX No 2.—List of Building sites available for Disposal—contd

No of s to	Area in acres	Locality	Distance by road from Post Office	Appropriateness of the position for building	Brief description of boundaries	Rate per acre	Remarks
3 1	Nalni Lake		Miles, 0'78	•	Site to the northeast of Best Club on Nalni Lake. North by foot of high cliff. East by nullah flowing into the Lake under a bridge. South by Andam Road and west by a line running up hill due northwest from a point 300' west of the nullah crossing referred to	Rs. 800	
73 74	Ditto		0'67		Colonies with 73 on its west boundary North by foot of cliff. South and part west by a nullah road and part west by footpath going due northeast up-hill, after the first corner bend from lake down. Site between Roberts' Spur and Andam Gate North and east by nullah from Dholi Ghat West by lower boundary between Pillar No. 43 and 44, 110 due northeast of former and 130 due northwest of latter South by footpath to Roberts' Spur (10' from edge)	800	
75 31	Andam Road Roberts Spur		1'29		Site south of footpath to Roberts' Spur North partly by footpath to 300' west of nullah then due southwest along nullah running down into plain. East by Dholi Ghat nullah and south by foot of high ridge.	800	
76 32	Ditto		1'29			600	

77	5-0	Nekhi Lake	1	3,000	Site to the west of Nekhi Lake, North by the high cliffs above Dhobi Ghat. East by a line 60' from and parallel to the lake road. South by the walls, dividing into the lake East by leased boundary 180' southward and 200' northwest of pillar No. 40.	800
78	3-3	Ditto	0-95	3,070	Site on Bailey's Walk and to the southwest of Nekhi Lake. Bounded on east partly by the rocky base of Tadil Rock and partly by the small nullah running due southwest. On south by the nullah flowing eastward to the north of Bailey's Walk and partly by a line 20' from and parallel to Bailey's Walk, up to a point 250' west of the junction of footpath coming up from lake. West by nullah and by cliffs and earth, partly by cliffs and partly by a line due southward up to the footpath on east referred to.	850
79	2-1	Residency Lawns	0-80	3,810	Site to the southeast of the lawn, on the Sunset Point Road (south side); north by nullah, adjoining the municipal gardens, East and south by Sunset Point Road; West by nullah.	1,275
80	1-8	Sunset Point Road	0-06	3,935	Site in the fork of the two Sunset Point Roads West boundary (carved) 200' east of the centre of junction. East by the Talar and nullah, North and south by Sunset Point Road (10' from edge).	1,950
81	6	Ditto	1-4	3,970	Site near the Sunset Point and on the junction of Bailey's Walk, North, east and south by nullahs. West by Bailey's Walk 20' from its east edge at the junction followed up in a regular line towards north.	700

APPENDIX No. 2.—List of Building sites available for Disposal—contd.

No. of site.	Area in acres.	Locality	Distance by road from Post Office	Approximate distance of the peninsula for building	Brief description of boundaries	Rate per acre	REMARKS.
82	3.45	Sunset Point Road	1.37 Miles	•	Site to the south of Sunset Point Road and to south-west of No. 81. North by Sunset Point Road (20' from edge) West and west by nulls. Width east to west in the middle 4.0. South by a bank along the hill side at a distance of 400' from centre of Sunset Point Road. Northeast corner 100' east of the Bailey's Walk junction.	Rs. 3,900	100

NOTE—In addition to those rates ground rent at the rate of Rs. 20 per acre per annum is assumed to be charged in each case.

POONA

1st March 1923 }
P. T. MIRAMIS

A. T. MIRAMIS,
Consulting Surveyor to the Government of Bombay

APPENDIX No. 8.

DEVELOPMENT OF BUILDING SITES.

Financial Statement.

Credits.	Rs.	Debits.	Rs.
Increment on plots resulting from development under the scheme	36,400	Cost of construction of roads	1,39,700
Capitalized ground rent 20 rupees per annum in respect of 224 acres in perpetuity at 5 per cent.	88,600	Pilgrim Road, four mile	96,000
		Chakkar Road	15,000
		Branch Rd. No 1	1,000
		" " " 2	3,000
		" " " 3	10,000
		" " " 4	5,000
		" " " 5	1,200
		" " " 6	2,500
		" " " 7	1,000
		" " " 8	2,000
		" " " 9	2,000
		Sundry improvements to two of the existing roads	1,000
Total	1,26,000	Total	1,39,700

No account has been taken in the above statement on the credit side for either increment or capitalized ground rent in respect of those plots which already have road access and are consequently not affected by the development proposals in this report. Equally no account has been taken in respect of those sites to which no access has been provided or exists.

The total value of lands already having adequate access is Rs. 71,000 to which must be added the capitalized ground rent *viz.*, Rs. 34,000, making a total of Rs. 1,05,000.

Summary.

	Rs.
Total value of all Building sites	2,80,000
Capitalized value of ground rent	1,50,000
Total	<u>4,30,000</u>

POONA: }

1st March 1923. }

A. E. MIRAMS,

Consulting Surveyor to the Government of Bombay,

APPENDIX No 4.

IMPROVEMENT OF BAZAAR AREA.

Valuation of properties to be acquired

Note—P—Pucca patta

K—Katcha patta.

L—Lekh's tenure

House No.	Tenure	Capital value.	REMARKS.
		Rs.	
144 to 147	P	2,082	
148	K	488	
149	P	266	
141	K	425	
140	K	471	
139	P	346	
137	K	354	
136	K	363	
135	K	341	
134	K	343	
133	P	412	
132	K	285	
131	P	400	
130	K	540	
76	P	800	
77, 78	P	505	
160	K	743	
169	K	323	
164			
165	L	260	Value of structures only (dilapidated)
166			

APPENDIX No. 4—IMPROVEMENT OF BAZAAR AREA—*contd*

House No.	Tenure	Capital value	REMARKS
167	K	Rs 181	
168	P+K	{ 192 285 }	
169	P	280	
170			
171	K	830	
172			
173	L	900	Value of structures only.
179			
174	L	420	Value of structures only
180			
206			
217	L	200	Value of structures only
219			
221			
223 to 227 and	K	1,426	
233			
222	P	970	
231			
232	P	1,225	
234			
235 to 237	P	627	
238	P	495	
239			
161	K	870	
162			
183	P	435	

APPENDIX No 4.—IMPROVEMENT OF BAZAAR AREA—contd

House No.	Tenure	Capital value	REMARKS
185	K	Rs 309	
187	L	433	Value of structures only
188			
191			
103			
194	L	800	Value of structures only
195			
196			
189	K	604	
100	K	275	
337	<i>Khalsa Lines</i>		
338	K	1,050	
335			
334	K	468	
333	P	400	
332	K	100	
334	K	300	
347	K	760	
348			
349			
350	P	1,035	
351	P	730	
353	K	664	
352	P	1,465	
353			
354			
355	K	620	
356	P	373	

APPENDIX NO. 4.—IMPROVEMENT OF BAZAAR AREA—*concl'd.*

House No.	Tenure	Capital value.	REMARKS.
366	P	Rs. 170	
367	P	235	
368	K	715	
369	P	268	
370	P	363	
372	K	405	
364	K	450	
366	K	820	
367	K	805	
370	K	495	
368	K	100	
369	K	565	
371	K	275	
381	P	200	Partition wall
382			

Note.— These values are based on information as regards area and tenures, etc., supplied by the Municipal and Talukdar's office.

POONA,
1st March 1923

A. M. ALIMARIAH,
Consulting Surveyor to the Government
of Bombay

APPENDIX No 5

IMPROVEMENT OF BAZAAR AREA

Area of Final Plots

Plot No.	Area	REMARKS.
	S ft	
1	5407	Frontage on Trevor Oval.
2	7700	Ditto
3	7895	Ditto.
4	6138	
5	7782	
6	3370	
7	2400	Garden
8	3496	Frontage on Trevor Oval
9	3104	Ditto.
10	6531	Frontage on Bharatpur Road
11	9075	Ditto
12	27821	Playground.
13	4203	
14	2362	
15	2452	Latrines (10 seats)
15A	4161	Cattle shed (for public callile).
16	2102	
17	3180	
18	3247	
19	8200	
20	6207	Site for vegetable market
21	2777	
22	2396	
23	540	Latrines (6 seats)
24	7710	
25	7024	
26	3182	
27	4500	
28	3040	
29	2050	Site for rehousing municipal sweepers.
30	1200	
31	4446	Cattle shed (for Municipal callile)
32	3330	Latrines (10 seats)
33	800	Latrines (6 seats)
34	400	Ditto.
	106090	=3 acres 82 gunthas.

POONA,
1st March 1928 }
A. E. MIRAMS,

Consulting Surveyor to the Government
of Bombay

APPENDIX No. 6.
IMPROVEMENT OF BAZAAR AREA.
Financial Statement.

Estimated return	Estimated cost of improvements
Rs.	Rs.
Sale of surplus plots of building land at Re. 1 per sft. for 1,00,000 sft deferred for a mean period of 3 years at 6 per cent (assuming that it would take 5 or 6 years before the plots are disposed of)	Compensation for properties to be acquired
52,960	50,000
Say	Cost of roads
84,000	23,180
	Diversion of nullahs and construction of gully drains
	4,000
	Municipal latrines
	7,700
	Rehousing the Municipal sweepers
	6,030
	Demanding and reconstructing the Municipal cattle shed
	10,100
	Garden and tree planting
	600
	Establishment charges on works at 10 per cent
	5,153
Total	Total
84,000	92,683

Net cost to the Municipality, Rs. 3,683, Say Rs. 3,000.

A. E. MIRAMS,
Poona, } Consulting Surveyor to the Government
1st March 1923. } of Bombay.

APPENDIX No. 7.

IMPROVEMENT OF BAZAAR AREA.

Estimates of Works.

New Roads—

	Rs.
20' Roads, 2470' at Rs. 2-8 per foot	6,176
14' Roads, 140' at Rs. 2 per foot	280
40' New diversion 250' at Rs. 5	1,750
Widening Bharatpur road, from 22' to 30' 575 feet at Rs. 1	575
Total	<u>8,780</u>
	8,780

Improving main Bazaar roads.

Cost of improving and re-surfacing the main bazaar roads	14,400
	14,400

Details—

	Rs.
Removing existing flagging, 830' x 13' at Rs. 10 per 100 s. ft.	1,404
Re-surfacing with bituminous concrete 3" thick on 6" lime concrete; 880' at Rs. 14 per foot	11,680
Improvements to Branch Roads and junctions	1,266
Total	<u>14,400</u>

Diversion of nullas and construction of pucca stone drains.

	Rs.
Main drain in Khalasi lines, 1000' at Rs. 2-8	8,600
Banegaon drain 250' at Rs. 1-8	375
General levelling up	125
Total	<u>8,900</u>
	8,900

Latrines.

Constructing 35 seats public latrines at Rs. 220 per seat	7,700
Total	<u>7,700</u>
	7,700

Re-housing Municipal Sweepers.

	Rs.
Dismantling existing insanitary structure, Rs. 50	50
Rebuilding 10 two-roomed (10' x 10' + 10' x 7' verandah) tenements, at Rs. 600 per tenement	6,000
Total	<u>6,050</u>
	6,050

APPENDIX No. 7.—IMPROVEMENT OF BAZAAR AREA—*contd.**Municipal Cattle Shed.*

	Rs.
Dismantling existing cattle shed Rs. 100 lump	100
Reconstructing cattle shed to accommodate 20 cattle, 2,500 s.ft. at Rs. 4 per s. ft. of plinth	10,000
	<u>10,100</u>
	10,100

Gardens and tree-planting.

	Rs.
Laying out a garden on the slopes of the main drain and planting palm trees at intervals of 20' Rs. 500 lump	500
	<u>500</u>
	500
Total	<u>51,650</u>
	51,650
	Rs.
Establishment charges on works at 10 per cent	6,163
	<u>6,163</u>
	6,163
Total estimated outlay on works	<u>50,653</u>
	50,653

A. E. MIRAMS,

PONNA, } Consulting Surveyor to the Government of Bombay.

1st March 1923. }.

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1924

